COAL AGE

The Only National Paper Devoted to Coal Mining and Coal Marketing

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A Code for Trade Associations

NOTHING less than a victory for business is the acceptance by the Attorney General of the trade-association code drawn up by the Department of Commerce and set forth in the letter of Secretary Hoover, which, with Mr. Daugherty's reply, is published elsewhere in this issue of *Coal Age* (pages 297-99).

Trade associations have been in more or less of a dilemma for months. Their activities under active suspicion following the first news of the government's injunction against the hardwood lumber producers and the disclosures of the Lockwood committee in New York, they were far from relieved of doubt as to their status by the Supreme Court decision in the Hardwood case.

From the start Mr. Hoover has taken a strong position in favor of promoting this line of business activity, holding in general that trade associations for the collection of certain vital statistics of business are essential to the progress of commerce in the present complex condition of our industry. In a series of eleven questions, covering every practical application of trade association usefulness, Mr. Hoover has established a code of greatest value to business. The Attorney General was asked "May trade associations engage in any or all of the activities named without violating the law, provided the organization and the activity engaged in are not for the purpose of hiding or concealing some agreement, contract, etc., to actually restrain trade or otherwise violate the anti-trust laws?"

To which the Attorney General made reply that he could "now see nothing illegal" in the exercise of the activities, "*provided always* [the italics are his] that whatever is done is not used as a scheme or device to curtail production or enhance prices and does not have the effect of suppressing competition." This expression of view he holds is very tentative and "if in the actual practice of any of them it shall develop that competition is suppressed or prices materially enhanced" he will proceed under the anti-trust act.

This is in consonance with the theory that objection is to the use that has been made of the associations and not to the instrumentality itself. It is important to have a clear understanding of the principles set forth by the Department of Commerce to which tacit approval is given. It is fundamental that the information collected and compiled must be equally available to the public, the buyer, as well as to those contributing the facts. It is pointed out that in the past the associations giving out their data have been in the minority. This must be corrected.

The support given to the association idea by the government is founded on the theory of mutual interchange of information, not only between members of a single group but between groups. The coal men must promulgate their facts to the buyers of coal, and the buyers of coal tell their results for the guidance of the coal industry. We are now in position to amplify the trade bureaus and proceed ahead at full speed. We may be back where we were two years ago, but at least we have some assurance of non-interference.

Collective Marketing and Selling

IS THERE a suggestion for the coal man in the farmers' aid legislation known as the Co-operative Marketing bill, recently passed by Congress? This legislation authorizes farmers and other producers from the soil to act together in associations, co-operate or otherwise, in collectively processing, preparing for market, handling and marketing in interstate and foreign commerce the products of their farms. The Secretary of Agriculture is to be the sole judge as to when those acting under the authority of this act are acting in restraint of trade.

Of the basic industries, bituminous coal, next to agriculture, is the least organized, the most highly competitive, overdeveloped, overmanned and, on the average, uncertain of remunerative return. From such a position it is possible to move in two directions. One is that taken by large industries such as steel, automobiles and textiles. Consolidation into large, powerful units is the first step on this course—the trusts of a few years ago. By this process there is developed the financial strength to withstand the shocks of depression and poor business and the ability to utilize every device for cheapening production and distribution. But the very evil it would be sought to cure is the chief deterrent to such a program. The soft-coal industry is overdeveloped because it is so simple to expand the plant; no one has attempted a coal company embracing 25 or more per cent of the country's total because it is so easy to open new mines to replace those consolidated.

The alternative is that taken by the farmers. Lacking the inherent ability to combine ownership into large units, the farmers now have the undisputed right to agree, combine or what not, for collective selling and marketing. In other words, the anti-trust laws have been set aside for the farmer. The manner of the getting is plain enough—having a fall-ward looking Congress, very mindful of the farmer's interests, the action is taken. Not that the country is as yet disposed to put the anti-trust laws on the shelf. Nor do we feel that this legislation is something to be "viewed with alarm." On the contrary, we are hopeful that it will give some approximation of the relief its sponsors anticipate.

Perhaps as a result of this experiment a way will be found to promote useful combinations, and mayhap when the country finds no ill effects from combination in one basic industry it will be willing to permit the soft-coal producers to make a beginning, even though there be no coal "bloc" in Washington.

Anthracite Consumers' Platform

SHIPPERS have been organized for many years for the protection of their interests in freight-rate matters, but the ultimate consumer has had little more than passing say on such matters as affect the costs of transportation in what he buys. A somewhat novel trial is being made to unite the consumers of anthracite in a concerted effort to reduce the railroad freight rates to New York and other Eastern points and to force the improvement in the quality of that product that all consider desirable but that so far has not been effected by the producers.

The "Anthracite Coal Consumers' Association, Inc.," chartered under the laws of New York, is founded on the theory that "the consumer is the only person vitally interested in reducing the price of anthracite." Five paragraphs cover the program of this new association—reduction in freight rates by half; improvement in the quality of the product as shipped from the breakers; seasonal freight rates to further encourage summer buying and storage by consumers; promotion of economies in use by admixture of bituminous coal with anthracite, and dissemination of knowledge of how best to burn coal.

To such a program, thus broadly stated, no one can take serious exception. If after such investigation as must be had in such matters the Interstate Commerce Commission finds, as contended, that rates on anthracite are too high, the rates should and will be reduced, and literally millions of people will be benefited. If someone can show the hard-coal producers how to remove more of the bone and slate from their product without at the same time throwing away half of what they mine, they will do it. Anyone who has had the opportunity of inspecting the new and elaborate breakers in the hard-coal region will appreciate to what expense and pains the producers have already gone in preparing clean coal for their trade. The art of preparing hard coal has made great progress in the past twenty years, but it is only proper to say that in the opinion of many it has not kept pace with the decrease in quality of the coal as mined. That is to say, the clean, thick beds of anthracite have long since been exhausted and what is being mined today is largely the thinner and dirtier beds passed up as unprofitable of extraction in the earlier days. We have no doubt that if the "Anthracite Coal Consumers' Association" can show the producer how better to prepare his coal, its suggestions will be welcomed. It is a mistake to assume that dirty coal is being shipped from preference.

On the matter of seasonal rates on coal there is room for honest difference of opinion. We are among those who hold that such is not the panacea for our coal troubles, but that in some instances variable rates would prove of advantage, in others a disadvantage. It is an undisputed point that seasonal prices for anthracite have proven a powerful factor in stabilizing the production, and it is further evident that the ancient 50c. summer discount of the producer has ceased, with present high delivered prices, to be the incentive it once was for early buying by householders. It is a fair question therefore whether it is not now time to increase this differential to at least a dollar, either by lowering still further the mine price in the spring or by a combination on seasonal mine and freight prices.

Education in the use of coal is a well-intentioned part of the program, quite properly placed at the tail end, however. Cheaper coal is the shibboleth around which this association may gather the consumers, for the average householder in the hard-coal burning territory will never willing depart from the convenience and cleanliness of the larger sizes of anthracite in his home. Education in the substitution of soft coal and fine sizes of hard coal is more likely to come from the producers seeking markets.

The new association seeks to interest consumers of the fine sizes of anthracite—the larger users. One point in this connection should not be overlooked. The steam sizes of anthracite are priced at the mine to meet competition with bituminous coal at delivered prices. It does not seem at all improbable that any decrease in freight rate on steam sizes to Eastern markets would be at once absorbed in higher mine prices. Fine anthracite is a byproduct the selling price of which is governed by that of competitive fuels, not by cost of production. It is true that if the producer realize more for his byproduct, he can and will eventually be forced to lower the prices of household sizes, which is one of the aims of the new association.

Cold Starlight Nights

MINE operators do well to keep a weather eye to the nights having a rimeless frost, when the air is both cold and dry and enters the coal mines with an insatiable thirst. Perhaps the many explosions which we have recently had to record did not all follow such nights and it also is true that every cold night or day, rimeless or even foggy, does its share toward drying out the mines; nevertheless when the nights are cold and dry it is well to be especially active in keeping the mines wet and free of dust, the shots claytamped, of permissible powder and not too large or drilled onto the solid.

If every bright, brisk, cloudless night would make the manager of a coal mine as increasingly apprehensive of trouble as is a shepherd when he sees in the morning a dull red sky, so many of the accidents we are now having and have had might not have entered the record. Two weeks ago there were three explosions, one on Jan. 30 and two on Feb. 2, forty men in all being killed. Last week on Feb. 8 another explosion occurred, this time at the workings of the Marietta Coal Co. on Pinson Creek, Kentucky. Nine miners were killed, and three probably were fatally injured. The explosion occurred as the night force went into the mine.

However, by discussing the dangers of the winter months the impression may be given that care is necessary only in the winter. Far from that being the case, explosions are in season twelve months in the year, and to avoid them continuous precautions must be taken.

The lessons learned from the Monongah and Darr disasters are, it is to be feared, largely being unlearned by miners and managers. Surely these four recent explosions, involving about fifty lives, should suffice to awaken in the mind of everyone the danger that exists in a bituminous mine, always and everywhere and to all, and especially in Northern climes, during the winter.

The growth of better methods lives a precarious life. One year times are so good that everything is sacrificed to steady running and production. The next year times are so bad that there is no money to expend on safety, and morale fails because work is so irregular. Unless safety is made indeed the first consideration of mine workers, managers and owners, dust explosions will continue to occur with painful frequency.

When Should Battery Locomotives Replace Mules and When Be Preferred to Trolley Equipment?*

Favors Mules in Early Stages, Later Accumulator Locomotive, Then Trolley Equipment—One Battery Machine Saves $7,000 a Year—At Lynch Mule Haulage Costlier Than Transportation by Battery Equipment

By Charles E. Stuart
New York City

SO FAR as I have been able to determine, the first storage-battery locomotives for mine haulage were manufactured in 1897 or 1898 and were tried out in the Pocahontas coal field, but they were not sufficiently satisfactory to justify their continued use. Battery explosions were frequent and caused serious damage to the wiring, electrical equipment and the clothing and bodies of the motormen. Sulphuric acid was used as the electrolyte.

Experiments were then conducted with locomotives bearing reels of flexible cable through which connection was maintained between the motors of the locomotive and the trolley wire. At first these reels were turned by hand. Later the reels were revolved by contact with the wheels of the locomotive, being raised out of contact with the wheels by a lever, when necessary. About 1902 the plan of operating the reel by chain and sprocket wheels from one of the locomotive axles, as is still the practice, was devised. The popular floating motor-driven reel had its inception in the Pocahontas field prior to 1906.

Radius of Action of Reel-Type is 500 Feet

The maximum radius of operation of the reel-type locomotive from the point of its connection with the trolley wire is about 500 ft. This is ample for room work and for certain entry work, but the need for a machine that would operate entirely independently of the trolley wire was so great that with the development of the storage battery renewed efforts were made to manufacture a successful storage-battery locomotive. About 1908 the gasoline locomotive was introduced. In spite of many objections to the use of this type of machine for such work, hundreds of these machines were purchased, affording excellent proof that a need existed for a machine operating independently of the trolley.

About 1913 several large manufacturers sought to produce a reliable storage-battery locomotive. For two or three years, although a satisfactory battery and thoroughly substantial mechanical parts and motors were available, the development was slow, because of the failure of manufacturers thoroughly to understand mine requirements, including the abuse and rough handling that mine machinery must undergo and the difficulty of obtaining proper attention for such machinery. The locomotive was insufficiently motored and frequently that manufacturer got the business whose conscience or lack of knowledge permitted him to furnish the smallest battery or the smallest motor that would make a fair appearance.

In the coal mines having the lowest haulage costs there will be found: Entry trackage of not less than 40 lb. weight well supported and well maintained on ties; room rails of 20 lb. Cars are of the greatest cubical content permitted by the height of the seam (in low seams) or (in high seams) by ease of loading; in well-managed soft-coal mines, where the shovel is used, cars with a cubical content as great as 235 cu.ft. are found. The track gage is not less than 36 in. and usually is over 40 in. The trips contain from 25 to 50 cars and the main-haulage locomotives weigh from 10 to 30 tons. There is double track on the main headings, good voltage at the working centers, the gathering locomotives are from 4 to 6 tons, and the workings are concentrated.

Within the car limits indicated, with a concentration

Advantages of Storage-Battery Locomotives

of work and with general grades not exceeding 6 per cent, the collecting of cars from a number of places or rooms and the taking of them to a siding where the trip is made up for the heavy locomotives is work suited to the storage-battery locomotive.

Under these conditions, the storage-battery locomotive containing motors and batteries of ample capacity for the actual cycle of duty has the following advantages:

1. It is unnecessary to string trolley wire and to bond tracks away from the main haulageways.
2. In thin coal it is unnecessary to brush the top or to take up bottom in order to make the roadway high enough for the passage of mules.
3. No time is lost in making cable connections with the trolley on entering rooms, or in splicing the reel cable when it is cut.
4. The chance that personal contact will be made with the trolley wire is absent.
5. In a gassy mine, away from the well-ventilated headings, the absence of a spark at the wheel or the trolley may be a vital consideration. In those mines where safety lamps are required, it is only a matter of time before the use of the trolley and reel locomotive

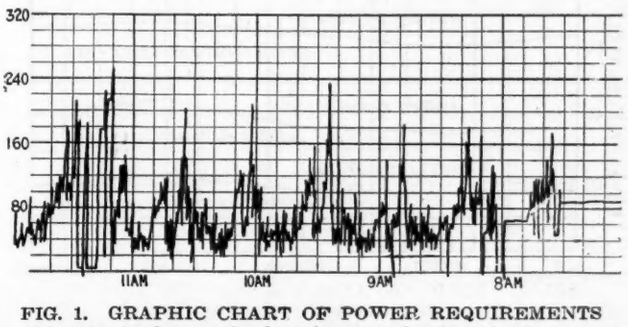


FIG. 1. GRAPHIC CHART OF POWER REQUIREMENTS
This mine-load curve is characteristic of soft-coal mines where the demands for pumping and ventilation are light. The haulage and cutting loads make frequent peaks which are reduced when storage batteries are used.

*Paper entitled "Storage-Battery Locomotive as Applied to Mine Haulage," to be read before the meeting of the American Institute of Mining and Metallurgical Engineers, New York City, February, 1922.

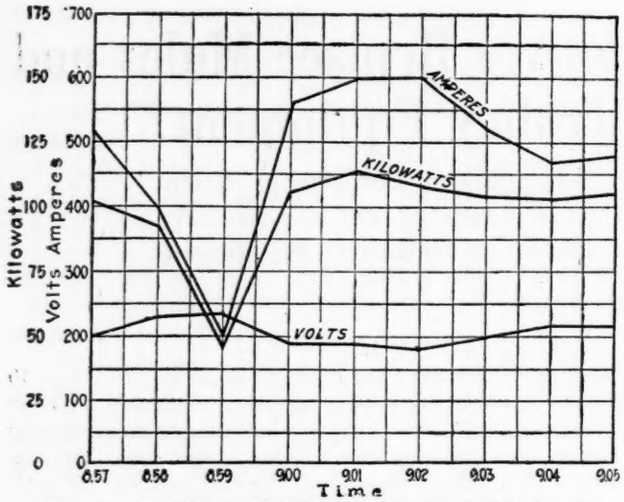


FIG. 2. CHARACTERISTIC CURVE OF DEMAND OF TROLLEY LOCOMOTIVES

The starting amperage of a heavy locomotive may exceed the heaviest amperage used in hauling.

for gathering will be prohibited. The storage-battery locomotive can be, and is being, made gas-proof and the locomotives thus designed will pass the tests of the U. S. Bureau of Mines.

6. The speed and haulage capacity of the machine, measured in pounds drawbar pull, will enable it to displace a number of mules and drivers and should materially lower the cost of gathering.

7. An invaluable consideration is that the storage-battery locomotive is independent on idle days of either substation or power plant. At such times a storage-battery locomotive may be used for handling supplies or for other purposes.

Battery Locomotive Evens Power Demand

A feature that has been given slight consideration but which is one of the most valuable characteristics of the storage-battery locomotive is its effect on the power demand, as shown by Figs. 1 to 4. In Fig. 1 is shown a mine-load curve that is characteristic of most soft-coal mines, except those with heavy pumping and ventilation requirements. Fig. 2 is a characteristic curve of the demand of trolley locomotives. The starting amperage of a heavy locomotive may exceed the heaviest amperage pulled in hauling. Fig. 3 shows that in the case illustrated the relationship of kilowatts consumed to possible output at normal rating is 19.35 per cent. It will be seen that the capacity of a substation or power plant must be related to demands of short duration, which invariably are trolley or reel-type locomotive demands. By contrast, the demand while charging a 6-ton locomotive containing the heaviest permissible battery will not exceed approximately 15 kw.

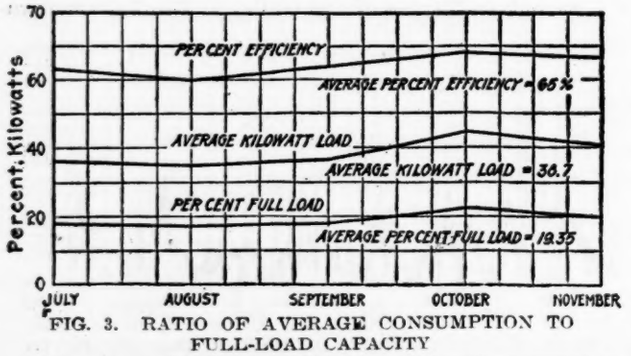


FIG. 3. RATIO OF AVERAGE CONSUMPTION TO FULL-LOAD CAPACITY

In the above chart the relation of the kilowatts consumed to the possible output at normal rating is 19.35 per cent. Such ratios are inevitable where trolley-and-reel type locomotives are making at intervals big demands for current.

Storage-battery locomotives may be charged outside of the day shift, when the demand on the plant or substation is light. As a result, the demand of this locomotive need not conflict with the demand of the trolley-type locomotive or with other demands where the plant is well loaded or where the power contract penalizes demand.

A large portion of all power required for coal and metal mines is being purchased and converted from alternating current to direct current through substations. Figs. 3 and 4 show the average efficiency of a mine substation during 5 months. In this instance 35 per cent of power was lost in the process of conversion; this figure is above the average. Although this loss in conversion for the actual battery charge may not be lowered where a small motor-generator set is used to convert alternating current to direct current for battery charging, as soon as a battery is charged, the charging set automatically shuts down; also the heavy loss entailed for operating a substation for charging purposes is eliminated.

Storage-battery locomotives are especially suited to new or small mines, from the standpoint of both investment and operating costs. I am now working on plans for a mine in which alternating current will be used for all stationary motor drives and for mining machines. For a short time animal haulage will be the cheapest form of haulage; but when the economic limit for this method of transportation is reached, it is proposed to purchase a charging set and storage-battery locomotives. In many cases with a small mine the storage-battery locomotive will be the most economical haulage unit for the life of the mine. With larger development the third step would be the introduction of the heavy trolley type of locomotive and the diversion of the storage-battery locomotive to gathering.

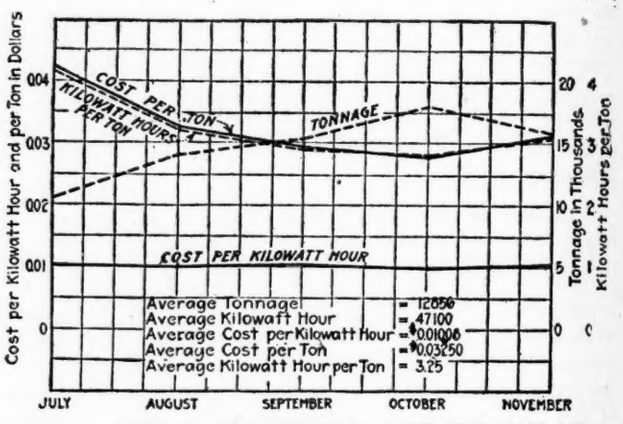


FIG. 4. OUTPUT, CONSUMPTION, COST PER TON AND PER KILOWATT-HOUR

It will be noted that the cost per kilowatt hour is little affected by the tonnage, so when the tonnage increases the kilowatt-hours per ton fall perceptibly.

The actual over-all efficiency of a storage-battery locomotive is lower than the over-all efficiency of the reel-type locomotive. The voltage loss between the substations or the power plant and the trolley type of locomotive, however, will almost invariably discount this advantage. I am inclined to doubt whether either the trolley type or the storage-battery locomotive has any advantage over the other in the matter of efficiency.

From the foregoing it may be assumed that within

weight limitations I favor the storage-battery locomotive over the trolley or the trolley-and-reel type. As a matter of fact, I consider that each type has its own fairly well marked field. To define the limits would be exceedingly difficult; they must be determined for each mine. For instance, to describe the trolley locomotive as a haulage machine and the storage-battery locomotive as a gathering machine, as the term "gathering" is used, a classification that is often made, is unfair to both machines.

The standard trolley type of locomotive is equipped with motors of a capacity equivalent to 10 hp. to the ton of weight; that is, the 6-ton locomotive will be equipped with motors of 60-hp. capacity. The speed of this locomotive, at rated drawbar pull, will approximate 6 miles per hour. A storage-battery locomotive of the same weight will be equipped with a motor capacity approximating 4 hp. (maximum) to the ton and having a speed, at rated drawbar pull, of 3½ miles per hour.

If from other standpoints a given condition favors the storage-battery locomotive and if the cycle of duty is within the range of that locomotive and its battery capacity, there is little advantage in using a locomotive with a greater capacity. It is impossible to apply, however, a general rule and I am simply calling attention to salient points. A plan of a mine worked on the room-and-pillar system is given in Fig. 5. Mules are used for gathering and the work per mule per day in the different sections is given. Were a locomotive to be applied to the first right and first left entries, it would

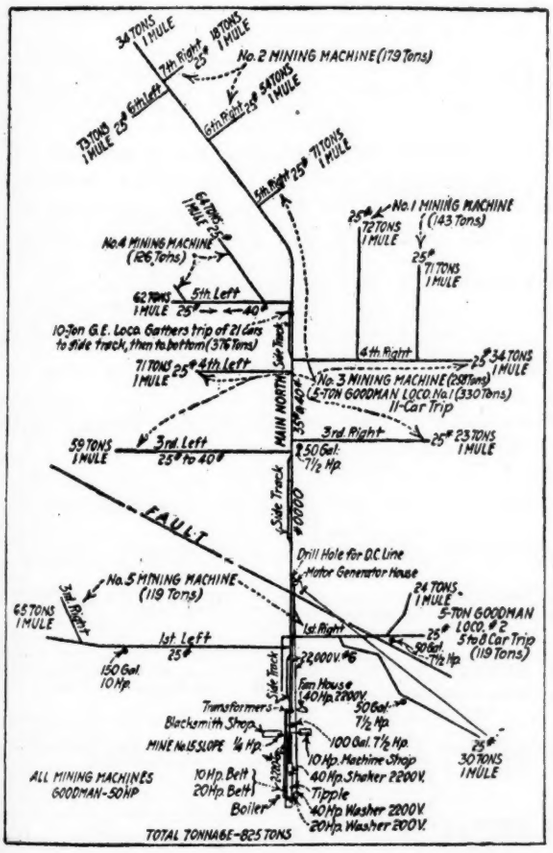

No. 2 MINING MACHINE (179 Tons)
No. 1 MINING MACHINE (143 Tons)
No. 4 MINING MACHINE (126 Tons)
No. 3 MINING MACHINE (238 Tons)
(4-TON GOODMAN LOCO. No. 1 (330 Tons) 11-Car Trip
No. 5 MINING MACHINE (119 Tons)
5-TON GOODMAN LOCO. #2 5 to 8 Car Trip (119 Tons)
MAIN NORTH
FAULT
Side Track
Drill Hole for D.C. Line
Motor Generator House
Fan House 40 Hp. 2200V.
Transformers
Blacksmith Shop
MINE No. 15 SLOPE
Tipple
Boiler
ALL MINING MACHINES GOODMAN-50 HP
TOTAL TONNAGE-825 TONS

FIG. 5. ELECTRICAL EQUIPMENT MAP, GALLOWAY COAL CO.'S MINE NO. 15

The scattered workings in this mine do not favor gathering by straight storage-battery locomotive but my mule. Where the work is so distributed that small units suffice to do as much as a large unit, then the small unit—the mule, in short—is cheaper. However, the greater mobility of the recent types of combination trolley and storage battery locomotives is making this consideration less vital.

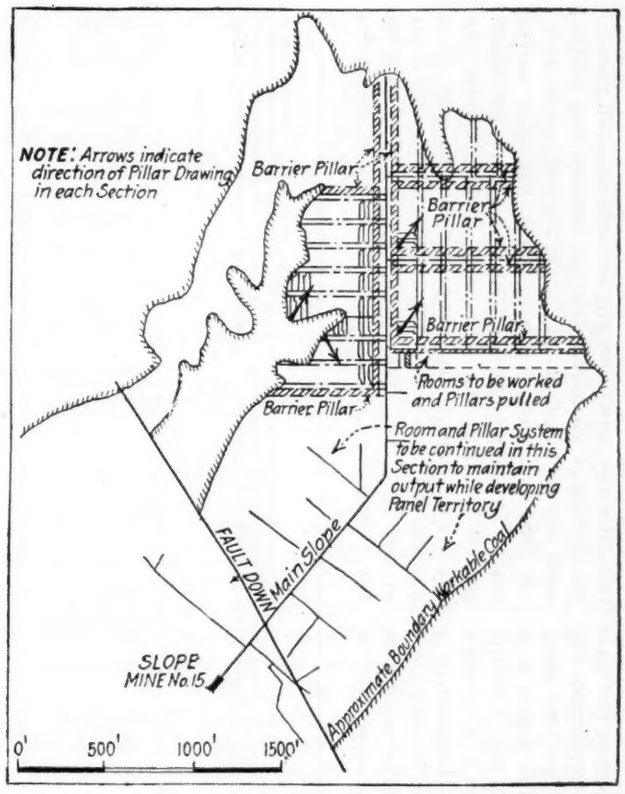


FIG. 6. SAME MINE AS IN FIG. 5 WITH EXTENDED LAYOUT

In the proposed extension care has been taken to so concentrate the workings as to make operation by storage-battery locomotive convenient and at the same time profitable. Concentration enables one locomotive to replace several mules.

be necessary to cover 21 miles per day in order to handle 119 tons and to displace three mules. The same analysis applied to the entire mine will show that the number of mules displaced by locomotives would be insufficient to justify an investment in locomotives; in fact, the locomotives would cost more to operate than mules.

A proposed panel system applied to this mine is shown in Fig. 6. We have projected this into the unworked area, as a continuation from the present limits of the room-and-pillar system. This panel system produces a condition of maximum concentration, which is the condition most favorable to the use of storage-battery locomotives.

Replaces Five to Six Mules in Indiana

The Queen Coal & Mining Co., of the State of Indiana, gives the following comparative results from using storage-battery locomotives with the panel system:

"We are operating No. 4 mine on the panel system and aim to keep the trolley partings within 800 ft. of the room necks, which means that the battery locomotives have 800 ft. of entry haulage each way, or 1,600 ft. to the round trip. The entries and rooms are fairly level throughout the mine. The locomotives take all loaded cars from the working faces and make up trips of six to sixteen cars, depending on the number of rooms working in the entry. They then pull the trip to the trolley parting, returning with the same number of empties as they brought out, in order to keep the turn even. The empty cars are left at the room necks and pushed to the face by the loaders.

"The number of cars handled per day by the average locomotive depends entirely on mine conditions, such as the number of rooms working on an entry and the num-

TABLE I—RECORD OF PERFORMANCE OF COMBINATION LOCOMOTIVE AT MINE OF UNITED STATES COAL AND COKE CO., AT LYNCH, KY.

Date	Hours Worked	Driver's Wages 70c. an Hour	Coupler's Wages 65c. an Hour	Current Consumption, Kw.-hr.	Current Costs $0.0175 per Kw.-hr.	Distance Covered per Day, Ft.	Number of Trips	Number of Loads Pulled	Number of Empties Spotted	Average Distance Covered per Trip, Ft.	Average Distance, per Car, Ft.	Average Level Distance per Trip of Total 43 per Cent., Ft.	Average Distance per Trip of Total 35 per Cent., Average of 7.7 per Cent. Against Loads, Ft.	Average Distance per Trip of Total 22 per Cent., Average of 4.1 per Cent. Favor of Loads, Ft.	Hr. Time Hauling Loads	Min.	Hr. Time Spotting Empties	Min.	Hr. Time Lost Waiting for	Min. Empties	Hr. Time Lost Waiting for	Min. Loads	Hr. Time Lost, Other	Min. Reasons	Average Time per Car, Full Trip, Min.	Weight of Trip in Cars, Coal and Locomotive Tons.	Weight of Trip in Cars and Locomotive, Tons	Net Tons Coal Hauled per Day.	Fixed Costs	Maintenance Costs
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		17		18		19		20		21	22	23	24	25	26
1	11	$7.70	$7.15	21	$0.37	48,690	3	37	41	16,230	623	6,978.9	5,680.5	3,570.6	2	50	3	51				30	3	53	4.7	66.0	35.9	96.2	$19.74	$1.82
2	10	7.00	6.50	20	0.35	48,216	2	40	48	24,108	547	10,366.4	8,437.8	5,305.7	1	57	2	09			2	06	2	58	2.8	106.0	61.2	104.0	18.39	1.80
3	9	6.30	5.95	16	0.28	48,080	2	40	36	24,040	632	10,337.2	8,414.0	5,288.8	2	30	1	58			2	04	2	08	3.5	106.0	39.4	104.0	17.14	1.73
4																													4.29	1.45
5	9	6.30	5.95	24	0.42	45,350	2	37	36	22,675	621	9,750.2	7,936.2	4,988.5	2	02	2	29			1	09	3	20	3.7	93.5	39.4	96.2	17.14	1.87
6	10	7.00	6.50	26	0.46	55,906	2	51	55	27,953	534	12,019.7	9,783.5	6,149.6	1	27	1	47		35	2	42	2	57	2.2	118.5	53.1	106.6	18.39	1.91
7	11	7.70	7.15	27	0.48	81,228	3	67	65	27,076	691	11,642.6	9,476.6	5,956.7	2	47	2	58	1	40	1	10	2	20	2.6	117.5	55.6	172.2	19.74	1.93
8	11	7.70	7.15	24	0.42	89,896	3	74	84	29,965	607	12,884.9	10,487.7	6,592.3	3	06	3			47		48	2	49	2.4	126.0	61.2	192.4	19.74	1.87
9	10	7.00	6.50	13	0.23	50,381	2	34	49	25,190	607	10,831.7	8,816.5	5,541.8		45	1	20	6	35			2	20	2.0	91.0	61.2	88.4	18.39	1.68
10	10	7.00	6.50	27	0.48	93,666	3	78	77	31,222	650	13,425.4	10,927.7	6,868.8	2	35	2	25			1	20	3		3.8	136.0	65.8	202.8	18.39	1.93
11																													4.29	1.45
12	11	7.70	7.15	21	0.37	50,360	3	37	41	16,786	645	7,217.9	5,875.1	3,692.8	2	36	3	21	1	35			2	58	4.5	66.0	35.9	96.2	19.24	1.82
13	11	7.70	7.15	28	0.49	92,022	3	77	67	30,674	639	13,189.8	10,735.9	6,748.2	3	19	2	59		30		10	3	42	5.2	136.0	56.6	200.2	19.74	1.94
14	10	7.00	6.50	27	0.48	93,004	5	63	61	18,600	750	7,998.0	6,510.0	4,092.0	2	42	3	34		50		34	2	25	3.0	66.0	33.6	163.9	18.39	1.93
15	11	7.70	7.15	26	0.46	97,335	3	61	61	32,448	798	13,952.6	11,356.8	7,138.5	3	03	3	56	1	08			2	33	3.4	106.0	52.0	158.6	19.74	1.91
16	11	7.70	7.15	28	0.49	106,526	4	77	80	26,657	678	11,462.5	9,329.9	5,864.5	4	05	3	35				25	2	55	2.9	101.0	52.0	200.2	19.74	1.94
17	11	7.70	7.15	29	0.51	103,393	4	69	74	25,843	738	11,112.4	9,045.0	5,685.4	3	10	4	20					2	40	3.1	91.0	48.5	179.4	19.74	1.96
18																													4.29	1.45
19	12	8.40	7.80	28	0.49	98,824	4	63	60	24,706	803	10,623.5	8,647.0	5,435.3	3	48	4	45					2	42	4.0	89.5	34.5	172.2	21.09	1.94
20	10	7.00	6.50	30	0.53	47,946	2	50	50	23,973	479	10,308.3	8,390.5	5,274.0	2	30	4	05					3	05	3.9	131.0	63.5	130.0	18.39	1.98
21	12	8.40	7.80	29	0.51	99,065	3	60	62	33,021	812	14,199.0	11,557.3	7,264.6	3	10	3	10					4	55	3.1	106.0	53.3	156.0	21.09	1.96
22	11	7.70	7.15	26	0.46	86,621	4	64	62	21,655	687	9,311.6	7,579.2	4,764.1	2	45	2	55	1	30		33	2	47	2.7	86.0	41.6	166.4	19.74	1.80
23	12	8.40	7.80	27	0.48	81,630	3	55	53	27,210	755	11,700.3	9,523.5	5,986.2	3	46	4	19				14	3	26	4.4	97.5	36.4	165.0	21.09	1.93
24	12	8.40	7.80	26	0.46	117,748	4	73	79	29,437	774	12,657.9	10,302.9	6,476.1	3	24	4	26	2	20			2	05	3.0	97.0	51.3	189.8	21.09	1.91
25																													4.29	1.45
26	12	8.40	7.80	27	0.48	99,660	5	63	61	19,832	803	8,527.7	6,941.2	4,363.0	3	38	3	48	2	40		10	1	29	3.5	69.0	33.6	163.8	21.09	1.93
27	12	8.40	7.80	29	0.51	80,140	4	58	58	20,035	690	8,615.0	7,012.2	4,407.7	3		4	29	1	40		15	1	39	3.8	78.5	39.3	150.8	21.09	1.96
28	10	7.00	6.50	22	0.39	91,004	4	59	59	22,751	771	9,782.9	7,962.8	5,005.2	2	40	3	07			2	15	1	38	2.9	79.5	39.8	153.4	18.39	1.48
29	10	7.00	6.50	23	0.41	117,570	4	75	72	29,392	799	12,638.5	10,287.2	6,466.2	3	22	3	55				15	2	03	2.9	99.5	39.4	195.0	18.39	1.96
30	11	7.70	7.15		0.39	69,748	3	53	52	23,249	664	9,997.0	8,137.1	5,114.7	2	10	2	18	2	40		41	2	45	2.5	94.0	45.7	137.8	19.74	1.84
31	10	7.00	6.50	47	0.42	106,609	4	60	60	26,652	838	11,460.3	9,328.2	5,863.4	2	42	2	55			1	17	2	46	2.8	81.0	40.5	156.0	18.39	1.87
						2,200,622	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.											Avg.					
						416.7 mi.	3.2	58.3	59.3	25,236	690	10,851.5	8,832.7	5,551.9											3.3					
		$203.00	$188.70	670	$11.71	15.4 mi. per day	per day								75	49	87	10	24	30	18	38	73	18		2,635.0	1,270.3	4,098.4	$540.89	$56.66

NOTE—Fixed operative costs in Column 25 are obtained by adding the driver's wages (Column 3) to the coupler's wages (Column 4) and allowing 12c. daily for motor-house rental and 20 per cent of supervision cost, $1.32 daily for interest on investment at 6 per cent, $1.23 for depreciation on locomotive at 10 per cent, $1.62 daily for depreciation of battery, figured on a seven-year life, 60c. daily for supervision cost per locomotive. These items total to $4.89 daily. Maintenance costs are obtained by adding to current consumption costs (Column 6), costs of repair parts at $150 per locomotive year, or 41c. per day, cost of labor on repairs, one hour per day or 80c daily, cost of repair shop (20 per cent of parts and labor costs) or 24c. daily.

ber of men working in those rooms. One day all the loaders may work while the next day from five to forty men may be out; this varies the tonnage and work done by the individual locomotives. When the first storage-battery locomotive was installed, a good motorman and trip rider, without difficulty, could gather from 140 to 160 cars in 8 hours; as they became more familiar with the operation of the locomotive the number of cars gathered gradually increased until as many as 264 cars have been gathered in an 8-hour working shift by a locomotive operated by a good motorman and trip rider; 200 to 210 cars are frequently gathered by one locomotive.

"The empty cars weigh approximately 1,000 to 1,200 lb. and hold from 2,200 to 2,600 lb. net of coal; all are of the plain-bearing type. Taking the weight of a loaded car as 3,200 lb. and 15 cars per trip, a train load weighs 24 net tons, plus 5 to 5½ tons for the locomotive. Thus, 220 tons net of coal are gathered and hauled to the parting per day by a locomotive gathering 200 cars. Unfortunately, due to our small cars, our turnover is very large for the tonnage hoisted.

"Taking everything into consideration, five to six mules and as many drivers would be required to replace one battery locomotive where it has a chance to work at least 7 hours a day continuously. Furthermore, if we had not introduced storage-battery locomotives, we would have been compelled to brush the roadways to make headroom for the mules. The loco-

motives are 33 in. in height from the rail to the top of the locomotive and weigh 5 tons.

Taking the cost of one locomotive, charging panel and necessary equipment to operate same as	$5,000.00
Interest at 6 per cent	300.00
Depreciation on locomotive chassis at 5 per cent	195.60
Repairs, such as brake shoes, lamps for headlights, springs, controller parts, etc., at $3 a month, which is ample	36.00
Depreciation of battery, per year	1,056.00
Labor, 1 hr. a day at 94c. an hour, to insert charging plugs and do any miscellaneous work necessary on the locomotive, as we cannot pay the men less than 1 hr. for overtime	188.00
One motorman, at $8.13 a day	1,626.00
One trip rider, at $7.50 a day	1,500.00
Current for recharging battery, average of 25 kw. per day, and covering all line losses $1.50	300.00
Total cost of operating one battery locomotive for one year, working 200 days	$5,201.60

"The cost of gathering with mules and drivers to replace one storage-battery locomotive, using six mules and six drivers for this work, is as follows:

Cost of six mules, at $135 each	$810.00
Interest at 6 per cent	48.60
Depreciation, at 25 per cent., on mules in low coal	202.50
Keeping six mules 365 days at $1.25 each, which covers the cost of feed, harness, shoeing, insurance, stable care, barn boss, medicines, doctor, and other expenses in taking the mules in and out of the mines daily	2,737.50
Six drivers, at $7.50 a day	9,000.00
Total cost of operating six mules, 200 working days a year	$11,988.60

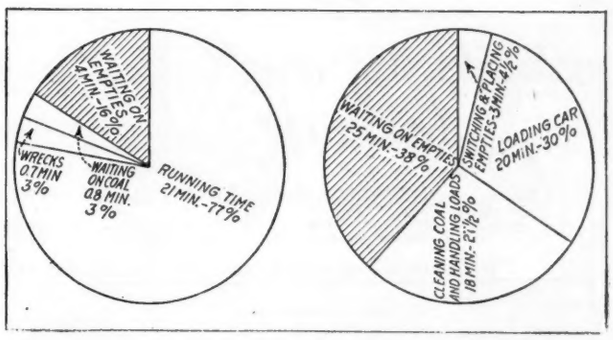
"If it would require six mules and six drivers to do the work of one storage-battery locomotive, at a cost of $11,988.60, and the total cost of operating a locomotive is $5,201.60, there is a net saving in favor of the locomotive of $6,787, or more than sufficient money to pay for the complete cost of installation of a locomotive. Even though the conditions are liable to change in some parts of the mine, where four mules could do the work of one locomotive, the locomotives would still be the more economical."

The Bon Ayr Coal Co., of Indiana, says: "Our cars are of the roller-bearing type, weigh approximately 2,000 to 2,200 lb. empty, and carry 6,000 lb. of coal net. We have two 6-ton storage-battery locomotives in operation and two others ordered. The longest run that a locomotive has to make in a given entry is 1,700 ft., or 3,400 ft. to the round trip, of which 200 ft. has a grade of 2 per cent against the load and 200 ft. has a grade of 5 per cent in favor of the load. The rest of the road is almost level. Half the rooms are fairly flat or slightly in favor of the load; the other half have a grade of 1½ to 2 per cent against the load.

"The storage-battery locomotives, as well as the reel-gathering locomotives, leave the bottom of the shaft with ten empty cars, which they place at the necks of ten rooms. They then take from the working faces of ten rooms, the rooms being driven to a depth of 250 ft., ten loaded cars, making up a ten-car trip which is hauled

TABLE II—SUMMARY WITH REMARKS ON TABLE I

Tons hauled in month	4098.4
Total cost per month	$597.55
Average cost per ton	$0.145
Mules replaced	8
Mule drivers and crab men replaced	8
Cost of operating per mile	$0.135
REMARKS	
Previous equipment used in same section, 8 mules, 8 men, and 2 crab units.	
Feed @ $20.00 per month each	$160.00
Depreciation at 25 per cent. at an average cost of $175	29.16
Interest on investment @ 6 per cent	7.00
Shoeing, stabling, and harness	16.00
Drivers and crab men at actual time locomotive worked	1,624.00
Monthly costs	$1,836.16
Locomotive monthly costs	597.55
Saving monthly	$1,238.61
Saving yearly	$14,863.32
COMPARATIVE RESULTS	
Per ton cost hauled by mules	$0.448
Per ton cost hauled by locomotive	0.145
Per ton saving	0.303


WAITING ON EMPTIES 4 MIN.-16% %
WRECKS 0.7 MIN 3%
WAITING ON COAL 0.8 MIN. 3%
RUNNING TIME 21 MIN.-77%
WAITING ON EMPTIES 7.25 MIN.-38%
SWITCHING & PLACING EMPTIES 3 MIN.-4½%
LOADING CAR 20 MIN.-30%
CLEANING COAL AND HANDLING LOADS 18 MIN.-27½%

FIGS. 7 AND 8. DIAGRAMS SHOWING PERFORMANCE OF MOTORS

In Fig. 7 the average time consumed by a trip was 27.39 minutes, of which the actual running time was 21 minutes. In Fig. 8 the trip waited on empties almost as long as it took to make an average trip in Fig. 7. The average trip in Fig. 8 took 66 minutes.

to the shaft bottom. A 25-lb. rail is used in rooms and for cross entries.

"Taking 2,400 tons as the average daily hoist, with eight locomotives, each locomotive would have to handle 100 cars per shift, if the cars contained 3 tons each. But as it is impossible to make loaders average 3 tons net per car, it is often necessary for the locomotives to deliver 140 cars and take out 140 loaded cars in order to produce the tonnage of the shift.

"The locomotives are 39½ in. to 40 in. in height; the ties are 3 x 4 in. and the rail 3 in. high, which gives a total height of 46 in. from the bottom to the top of the locomotive. There is a 6-in. clearance between the top of the locomotive and the roof in our thinnest coal. In many parts of our mine the coal is much thicker and naturally gives a greater clearance.

"The locomotives have gathered 16-car trips, but when working twenty rooms on an entry, with all men in, the 10-car trips work out satisfactorily, as that leaves ten rooms at which the motormen drop off ten empties and ten rooms from which to take out loaded cars. If there should be twenty-four rooms working on an individual run, the motorman would deliver twelve empty cars and take out twelve loaded ones.

"Mules would not be able to handle our work, as the cars, if loaded to capacity, would weigh over 4 tons, and the best the average mule would be able to handle would be one car at a time, thus the mine would be full of mules. Also, 3,400 ft. for a round trip with heavy cars would be beyond the mule capacity through a shift.

"The reel type of gathering locomotive has given good service, but the storage-battery locomotives will gather more coal at less expense. Also, if the power is off temporarily and there is plenty of coal shot down they can continue to gather and haul the coal until the supply of empty cars has been exhausted. Furthermore, for miscellaneous hauling on idle days or nights it is not necessary to start up a generating unit of any kind in order to operate them.

"At the end of a day's work the locomotives are charged through a rheostat switchboard from a 250-volt direct-current circuit. As the switchboard is automatic, an attendant is unnecessary. The charge is started on the locomotives and as each battery is fully charged the charging circuit is automatically cut off. It is necessary to add water two or three times a week to each battery to replace the water evaporated; this requires about 15 minutes for each locomotive. Outside of general inspection, oiling, etc., no attention is required other than that which should be given any piece

TABLE I—RECORD OF PERFORMANCE OF COMBINATION LOCOMOTIVE AT MINE OF UNITED STATES COAL AND COKE CO., AT LYNCH, KY.

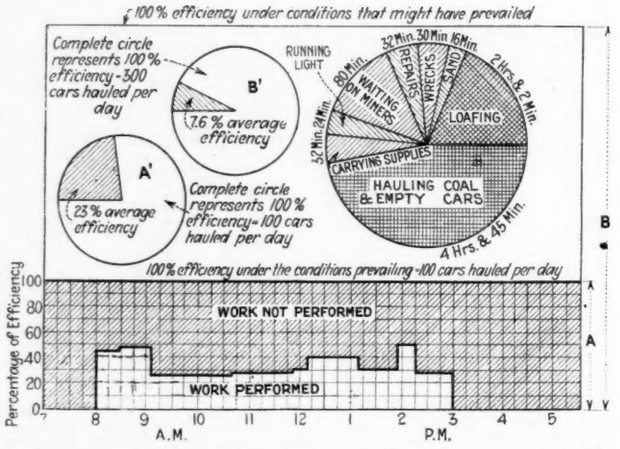


FIG. 9. GRAPHIC ANALYSIS OF DAILY PERFORMANCE OF LOCOMOTIVES

The above is practically characteristic of mine haulage in general. Similar tests made several weeks later, after power and other conditions had been improved, indicated a 100-per cent increase in productive effort and a proportional decrease in the equipment needed for the work performed, power consumption and other incidental costs. A represents possible work under prevailing conditions; B, possible work under conditions that might have prevailed.

of mining equipment at the end of the day's work."

John B. Hicks, assistant superintendent of power and mining, Consolidation Coal Co., in a paper read before the Kentucky Mining Institute, June 4, 1920, said: "Over a period of three years 3,003,361 tons were hauled at a cost of 12c. per ton. These figures cover renewals and the daily care of the battery, which includes the flushing as well as all necessary repairs. They do not credit the battery locomotive with the recovery of rails and pillar work or with the hauling of supplies or the bailing of water, but only with the actual coal tonnage hauled."

In all of the preceding statements only the true storage-battery locomotive, as distinguished from the combination storage-battery and trolley type locomotive, has been considered. The primary purpose of the latter locomotive has been the conservation of the battery charge. This locomotive, when operating under a trolley wire, will receive its power directly from that source and at the same time the storage battery will receive a charge.

Table I, showing the performance of the combination locomotive, was compiled after a careful study for a month at the Lynch mines of the United States Coal & Coke Co., at Lynch, Ky.

The performance of motors and loaders in a given mine, as obtained by a careful time study, is given in Figs. 7 and 8. Fig. 7 shows the time lost by a locomotive while waiting for empties. In this case the loss is small, being but 16 per cent of the total. Fig. 8, on the other hand, shows that the time spent by loaders waiting for empties is 38 per cent of the total. It was the opinion of the mine operating department that additional locomotive equipment was necessary, but these charts clearly indicate that the curtailment of production was caused by an insufficient number of mine cars. The purchase of additional locomotives, instead of being helpful, would have been hurtful in this case, both from an operating point of view and from the standpoint of cost.

This fact is further shown by Fig. 9, which is the summary of a series of analyses made at several mines. The performance shown is more characteristic of delays encountered or permitted than is indicated in Figs. 7 and 8. To sum up, a locomotive should not be blamed for those conditions that prevent the locomotive from working to the capacity for which it was built. Many locomotives are blamed for delays of one kind and another that reduce the tonnage handled by it, but this is more true of the storage-battery locomotive than of any other type.

One important manufacturer has developed a combination locomotive. It is equipped with two motors, one driven by the storage-battery charge and the second by a current from the trolley wire. This second motor is built up to 35 hp. for the 6-ton machine, and the locomotive is designed, when driven by this motor, to produce its rated drawbar pull at 6 miles per hour. The successful application of this principle will represent a valuable step forward in the development of locomotives for mine haulage. There are many conditions in which, in addition to the actual work of gathering, the locomotive should be capable of strictly haulage duty, in the sense of speed and sustained drawbar pull.

On account of space limitation, the motor receiving the full voltage from the wire has a lower rating than the present haulage locomotive, though equal to that applied to the haulage locomotive of a few years ago.

What is Your Production Record?

DURING the past several years *Coal Age* has been asked repeatedly such questions as: "What is the biggest day's work known for a single mine hoist?" "What is the world's record output for a single mine?" "What is the greatest tonnage ever taken from a single mine opening (shaft or slope) in one 8-hr. shift?"

In all of these queries the idea is the same. It would be a "fair bet" that some mine had just made the biggest day's run in its history; the officials of that particular operation felt a justifiable and altogether commendable pride in their accomplishment; they would like to spread the good news beyond the confines of their local community but hesitate to do so because they fear that some other operation has long ago beaten their output. As a result they write to the editor in the full belief that from him they can learn exactly how they "stack up" with the rest of the industry before they begin making too much "noise."

Now the editor gladly furnishes such information as he has available, but at the present time he is by no means sure just what the "record" really is. While it is quite true that various figures have been published from time to time, it is not certain that those published, say, in 1920 hold as records in 1922. Record productions are constantly being bettered. Just when the officials of one mine think that they have a record "clinched," some other operation exceeds their tonnage by a substantial margin. Sometimes it is they themselves that turn this trick.

Take as an example the No. 3 mine of the Superior Coal Co., at Gillespie, Ill. In June of 1920 this operation averaged 4,813 tons per day, with a maximum day's output of 5,140 tons. This surely looked good as a record hoist, but in less than six months this same mine with the same equipment had beaten this mark by somewhat more than 10 per cent!

As a reader of *Coal Age*, if your mine has made a day's run of which you are proud, won't you write in and state the facts? Record outputs in each class, of course, will be published.

Wide Range of Combinations of Coal Essentials Hinders Fixing of Universal Specification Standards*

Relative Values for Different Fuels Determinable Only for Particular Time or Plant — Knowledge of Coals More Helpful Than Specification Mechanism — Sound Contract Expresses Mutual Agreement Based on Accurate Information

By Gerald B. Gould†

IN MAKING specifications for coal buying there is no way of establishing all coals in a scale of values, for the simple reason that there are an infinite number of combinations of the essential characteristics to be found in individual coals and many different requirements. In a rather crude way at the present time the laws of supply and demand set up differentials in price, but these are constantly in a state of flux. Take a broad distinction: that between semi-bituminous coals and the small sizes of anthracite. In general the relation of the heat value and other characteristics as between these broad classes remains the same, and yet for a particular consumer their relative value at the mine would be changed by an increase or decrease in freight rates, even though it were a percentage increase or decrease covering all kinds of coal. This introduces another difficulty. Coal prices from the seller's point of view are prices "at the mine," yet between the mine and the consumer is a more or less rigid system of freight rates, in many cases double or triple the mine price. And the relative value of coals must be determined by the consumer on the basis of the cost of the coal at his plant.

Not Possible to Set Up Universal Standards

It seems clear, therefore, that we cannot set up universal standards, nor can we determine relative values for different coals, except for a particular time and plant. Surely, therefore, the device of specifications will not simplify the selection of coal by determining, once and for all, relative values.

Now go a step further. Assume that a particular consumer is about to obtain bids under specifications, and assume that he has determined definitely the limitations within which a satisfactory coal must come. For the sake of simplicity leave out everything but ash and heat value, and assume that this buyer can and has satisfactorily operated his plant on a coal which averages 12 per cent ash and 13,800 B.t.u. dry. If he set this as a standard, and the bidder delivered coal with 8 per cent ash and 14,450 B.t.u. dry, he would, according to a proposed set of specifications which I have before me, pay 22c. a ton above the upset price.

It might be said there is nothing out of the way in this. The buyer would obtain a more valuable coal and pay more for it in proportion. That is the purpose of specifications. Right here is where many coal buyers make a mistake by not thinking clear through to the conclusion. Whether he did or not, we will assume that the buyer in this case received as many heat units per dollar from the better coal at 22c. higher price as he would have received from coal of his standard value at the base price. Where the mistake is made is in not looking beyond this adjustment. In the case of a commodity like coal, about which so little accurate information is generally available, there is not yet any relationship between value and prices offered. It is not only possible but frequently occurs that two coals as far apart as 13,800 B.t.u. and 14,450 B.t.u. will not only be offered at prices which are as much as or more than 22c. apart but the higher price may be asked for the poorer coal.

In other words, any standard in coal specifications is just as much a part of the price as the number of dollars and cents per ton. Unless one knows coal values to begin with, there is nothing in the specifications mechanism which prevents him from paying more than he needs to in any given market for a given quality of coal. There is right now, for example, a certain large consumer buying coal under specifications which obligate him to pay a premium of 25c. a ton for coal of only average quality, and the base price for this kind of coal at the time this contract was made was not 25c. below the general level of prices. This is simply because the "standard" was placed too low or, what amounts to the same thing, the price was too high for the quality of coal described as "standard." The high price, however, was expressed in the standard, instead of in the dollars and cents per ton, and so escaped notice.

Exact Knowledge Always Advantageous

The important thing in buying coal, assuming one knows the particular limitations of his plant, is to know the actual values of the coal under consideration. This knowledge, taken with the price, will enable the buyer to make the best choice. Then, and only then, should specifications play their part. Then in an ideal world, which of course does not exist, the seller and the buyer would both agree that the coal should average of a certain value, and as an assurance to his customer the ideal seller would enter into a contract to maintain this quality, or be paid more or less as his actual performance exceeded or fell below his standard.

The first principle of a sound contract is that it expresses as nearly as language can the *mutual* agreement of the parties to it. The lawyers call it a meeting of the minds, and the courts tell you that unless there actually was a meeting of the minds there was no valid contract. But how can minds meet in minute detail on a matter about which one side or the other, under conditions as they exist today, is almost sure to be either uninformed or misinformed?

Coal specifications have worked smoothly and efficaciously in a relatively few instances, where the buyer had the means of getting at the underlying facts and where the seller was reliably informed as to the actual value of his product. These were in cases, too, where

*Second and concluding installment of Mr. Gould's article on coal specifications; the first part appeared Feb 9, under the caption "Specification Systems Should Not Be Permitted to Eliminate Judgment in Coal Buying." Published also in *Purchasing Agent*.

†Vice-president, Fuel Engineering Co., of New York.

the tonnage involved justified the expense of carrying out the technical provisions of the contract in regard to sampling and testing, and where the sampling and testing methods were so arranged as to command the confidence of both sides. In many other cases specifications buying has *seemed* to work well merely because both sides were able to carry the contract through without any differences, or they have *seemed* satisfactory to the buyer because he made deductions, or to the seller because he obtained premiums. In fact, in many of these cases the specifications as a device for adjusting price to value did function properly, but what if they did, if the standard from which the adjustments were figured was out of line with the market at the time the contract was made?

Relation of Specifications to Coal Price

You sometimes hear specifications spoken of among buyers as a means of bringing down the price of coal, and some think of deductions from the price under specifications as if they represented savings. Any substantial difference over the period of a contract, either above or below the base price, is evidence of a faulty standard for the coal in question. If the standard and price are in line with the market, and the standard is a representative one for the particular coal, the buyer will save money by paying premiums. If a buyer has exacted consistently large penalties, he has, consciously or unconsciously, taken advantage of a seller who has been either misinformed or uninformed as to the quality of his coal. It may be answered that that is something for the seller to look out for, and so perhaps it is, but even so it does not make a sound basis for the conduct of business.

There are many technical features to the successful use of specifications, such as an equitable basis for price adjustment for quality above and below a standard, and sampling and testing methods, which might be discussed at length. The attempt here has been, however, to get beneath the superficial view of coal specifications. This discussion might be summarized as follows:

No Substitute for Accurate Knowledge

A coal specification is part of a business contract. To be sound it must represent a genuine agreement between buyer and seller. To this end, both must be adequately and accurately informed before the contract is drawn. At the present stage of development of the art of coal buying neither the buyer nor the seller, speaking generally, is sufficiently informed to operate coal buying on a specification basis without running risks as great as those they are trying to avoid. It is my belief, after plenty of opportunity to observe specifications in actual use, and after fifteen years of intimate contact with the problems of both buyers and sellers of coal, that any attempt to bring about the sudden use of coal specifications would be harmful to both buyers and sellers; that coal specifications are a proper and logical conclusion to coal negotiations carried on with full information and adequate technical facilities for sampling and testing, but that their general adoption, if ever, should come by gradual development, through the influence of a steadily widening knowledge on both sides. Coal specifications are not a cure-all nor will they ever furnish a substitute for accurate market information, which includes knowledge both as to prices and coal quality.

"An' They Are Still Goin' 'Round"

SHED a tear for Joe Hooten. The sad but thrilling story of Joe's experience back in 1913 with an early and boisterous specimen of combination trolley and battery type mine locomotive has just been exhumed from the ancient annals of a Utah mine. The story proves that that justly famed character in agile rubber boots who jumped from the umptieth floor of a burning building and couldn't come to anchor, had nothing on Joe. Joe couldn't either. But he did his noble and blasphemous best, aided and abetted by the entire mine gang. A pleasant time was had by all present, as reported in this letter from Joe's foreman, Pete McGinnis, written to an official:

Mushroom hollo oct the 10th 1913

mr. horace Alexander lectercal enjuneer Young man's butte Utah.

dear sir i got your letter askun did the new combinayshun storage battry an troley locomotiv run it does we put it on the circular track in number 7 mine an jo Hooten the motorman wanted to show off

an he jammed

the controler handul over as hard as he could an the locomotiv started an is going yet we cant turn the power off the line cause one of the ginnies in the power stashun tride to throw the switch and didnt no how an we had

fourth of july an the last days of pompay all to once an we gobbed the ginnie yesterday an will have to shoot jo to keep him from starvin to death this combinayshun stunt is great i dont

"AN' HE LIT ON THE HOT MOTOR AN' SWOAR SUMPIN' AWFUL."

think wen the locomotive leaves the troley wire it runs on the battry an wen it gits back on the troley wire it charges the battry an is reddy for another round them motors is so danged hot you can smellum a mile but on that circular track the locomotiv is making about 78 r.p.m. per minute we made up a anker of cast iron with a steel kabul an wen jo whisked around on the 2 hunderdth lap we throwed the anker to him an jo he throwed it out and the locomotiv stopped

so sudden that jo went right on in the direckshun of room 143 entry 46 but the kabul broak an

the locomotiv ketched up with jo and wen he fell he lit

on the hot motor an swoar sumpin awful an they are still going round wat can we do this is

hell

yours truly pete McGinnis

Reinhardt Thiessen, associate research chemist of the U. S. Bureau of Mines, is continuing his study of the origin and composition of coal. He has examined bituminous coals from different beds in Pennsylvania, Alabama, Kentucky, West Virginia and Ohio. An investigation has begun in co-operation with the Pennsylvania State Geological Survey to study the relationship between the composition and the distillation products of coals, cannel coals, cannel slates and bone coals of Pennsylvania.

In co-operation with the research bureau of the American Society of Heating and Ventilating Engineers, tests have begun at the Pittsburgh Experiment Station of the U. S. Bureau of Mines to determine the heat transmitted to the firepot alone of a small house-heating boiler when a definite quantity of coal is burned. Later additional sections will be added to the heater and the increase observed in the quantity of heat transferred.

Scraper Loading Well Adapted to Thin Seams Where Coal Will Not Slide from Face to Mine Car

Description of Scraper That Without Turning Reciprocates Between Haulage Road and Dislodged Coal—Gets Under Material and Does Not Tend to Mount It—Costs of Production Under Unusual Difficulties

BY DEVER C. ASHMEAD*
Kingston, Pa.

EACH succeeding year in the anthracite region of Pennsylvania the production of coal becomes more difficult. Gradually the thick beds are being exhausted and thinner ones must necessarily be worked. It would not be far from the truth to say that only about 50 per cent of the yearly output is now being obtained from the thick measures and that consequently an equal amount is being produced from thin beds. These may vary in thickness from as low as 18 in. in some places up to 4 ft. in others.

Steeply pitching beds are mined with less difficulty than those which are flat. In the former it is possible for the miner to stand erect while working and he is not compelled to shovel his coal into mine cars, as it will run away from him down the breast.

As a miner will not stay in a room where he has to push coal on sheet iron even over short distances, it is extremely difficult to induce men to work in these low places. Of course it is possible to brush the top or lift the bottom and carry a roadway up the room so that the men may load directly into mine cars, but this is extremely expensive and is feasible only on slight pitches. Furthermore it makes the cost of a ton of coal so high as to be practically prohibitive. Even in flat beds and in breasts having a roadway the coal in many instances has to be pushed across the room or reshoveled before it can be loaded into mine cars.

SHOVEL HAS JUST TWO SIDES AND AN END GATE

One type of scraper, and the method of operation suited to its construction, which have not yet been given extensive publicity, doubtless will be of interest to both anthracite and bituminous operators. The device is known as the Strange scraper and it differs radically from those of the ordinary type. Scrapers usually are built in the form of a *V* and in order to be loaded must be turned with the open end toward the coal, so that the scraper will fill as it is drawn through the loose material. Then by means of posts and pulleys it is turned round so that it will drag the coal down the room to the loading chute. This *V*-type of scraper has a tendency to ride upon or over the material being dragged and it is often necessary to use manual labor to force it into the coal, so that it will pick up its load.

The Strange scraper, being of an entirely different construction, operates in another manner. Instead of the sides being set at an angle they parallel each other, being about 6 ft. apart. Both ends of the scraper are open but the rear end is provided with a door. This is hinged at the bottom and is built of great strength. The ropes that operate the scraper are attached to it in such a manner that when the device is being pulled into the room the door is open and lies flat on the floor of the breast. When the scraper reaches the coal that has been shot down, the opened door digs its way under the loose material. After the door has been fully buried under the coal the hoist is reversed so that the rope that pulls the scraper back down the room, being attached to the inside of the door, closes it and throws the coal into the body of the scraper. This digging into the coal and reversing is repeated two or three times, so that the scraper will become fully loaded. When it is full it holds about one and a half tons of coal and as a rule only two trips from the roadway to the face are required to fill a mine car.

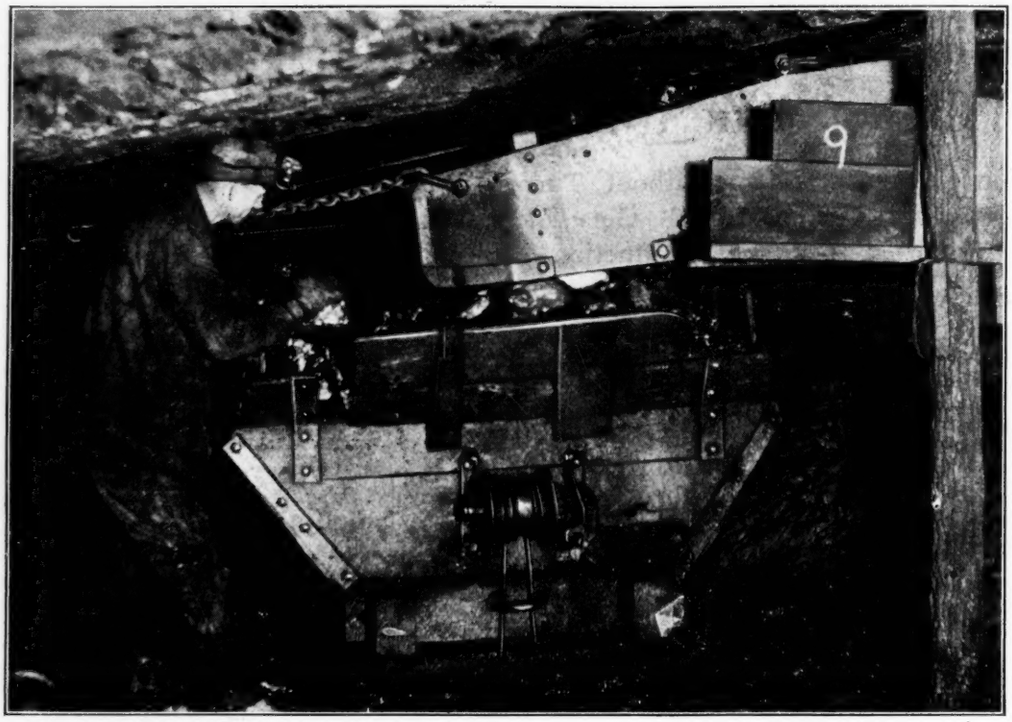
In the chamber in which I recently saw one of these scrapers at work the roof was weak, a double line of props being required in a 24-ft. room. These props were set about 8 ft. apart and on 6-ft. centers. Boards nailed along the base of the props acted as a chute in which the scraper moved up and down the room. It was necessary to set props within 10 ft. of the face. This prevented the scraper from operating to best advantage. Previous to shooting the coal a jack was set close to the face of the room and the scraper rope passed through the snatch block upon it. The coal was then shot down, but without disturbing the jack.

Immediately after shooting it is possible to operate the scraper and commence loading coal. With the face full of loose material this is easily done, as the scraper has only to dig into the dislodged mass once or twice

SCRAPER COMING UP ROOM FOR A LOAD OF COAL

With its lower and only jaw wide open and so far under the coal as to be hidden the scraper is entering the room. As soon as it is pulled back this door or jaw lifts, carrying the coal with it in its outward motion.

*Anthracite editor *Coal Age*.



Loading Into Car

In this case the gangway is well below the coal bed; consequently the coal readily drops into the mine car without need of an adjustable apron. Note the chain for dragging the scraper and the wire rope by which the rear door is lifted. Also note that the scraper has no bottom but drags the coal along the mine floor. In a room 250 ft. long a three-ton mine car can be loaded in six minutes, using a hoisting engine having a rope speed of 150 ft. per minute.

in order to get a full load. Immediate operation of the scraper aids in clearing the smoke from the room, thus permitting the men to get back to the face quicker than they could if it were necessary to wait for the smoke to clear up in the usual manner.

As soon as it is possible to re-enter the room one man goes up to inspect the result of the blast and if everything is in proper condition he takes his position at the signal button and through it directs the movement of the scraper. When the space immediately in front of the jack post is cleared, the signalman moves the post to one side or the other, so that the scoop may have plenty of loose coal to load.

In this manner all the coal in a room can be loaded into mine cars without any of it being moved by hand shovel, except that which lies in the corners of the room or which may have been thrown behind the props by the force of the blast. In rooms where it is necessary to set the props in a double row and close to the face they interfere with the operation of the scraper and in such a case some coal must be shoveled by hand in order that the coal may be brought within reach of the scoop.

In a room 250 ft. long it is possible with this type of scraper to load a three-ton mine car in six minutes, using a hoisting engine having a rope speed of 150 ft. per minute. If plenty of coal were available, cars were always on hand and no delays were experienced it would be possible with one crew to load at a maximum rate of ten cars per hour, or eighty cars per day. Of course this is out of the question, as it is necessary to change the position of the jack props, shovel some of the coal by hand, and move the scraper from room to room. Besides this it is practically impossible to shoot down sufficient coal in these low beds to give a full day's run for any scraper crew, unless an excessive number of rooms are worked.

Before going into the matter of the cost of producing coal by this means a brief description will be given of the conditions under which the scrapers are now working. In the heading shown in the accompanying map, which we shall call *A*, the scraper is operating in coal about 28 in. thick. Only two breasts are being worked. The coal is loaded into mine cars and the same hoisting engine that operates the scraper actuates a short rope haulage system that pulls the cars to the main heading. Here they are discharged into a chute, when empty returning to the mouth of the chamber for reloading. The roof is weak and, as has been stated, it requires two rows of props, which have to be carried within 10 ft. of the face.

The next place where the scraper is used is in a pillar hole. Here the coal is only 26 in. thick. This pillar hole is designated on the accompanying map as place *B*. In the third section, shown at *C*, the coal runs from 18 to 25 in. thick, the method of mining being longwall. The hoist at this point is mounted on a locomotive and two scrapers are used.

About the same sized crew is at present employed in all the three places just mentioned. Some of the work is done on company time and some on contract. The daily rates of pay on which the company men work are as follows: Driller or miner (drills and shoots two breasts), $5.53; helper, $4.91; timberman, $5.52; hoist man, $5.11; working foreman, $5.52; laborer, $4.91.

In addition to the above the men are paid a bonus. Before this bonus becomes operative they are required to furnish one car for each man employed. Then for a second car each man receives 10c., for the third car, 15c., for the fourth, 20c. and for the fifth, 25c. The average bonus per shift per man for the month of August was 21c.

The mine cars have a capacity of 113 cu.ft., which is approximately 3 tons of coal. The average colliery yield is about 2.4 tons of cleaned coal per car. This of course includes the material from the steep-pitching breasts, where it is impossible to separate the rock underground. However, in the thin beds where the scraper is used the product is practically clean coal, so that the yield in marketable fuel per car considerably exceeds the average.

In section *A* the mining cost per car is between $3.78

and $3.84 and the delivered cost on the main haulage road is between $4.20 and $4.40. This work is done on company time. The average number of cars loaded is small because of the condition of the roof and the fact that only two working places are available instead of three or four, which the crew should be able to handle easily. Two scrapers are at work and the average number of cars per scraper per shift is 4.25.

In section *B*, which is a pillar hole, the work is done on contract. Here the coal is delivered to the main hoisting slope, 2,000 ft. away from the working face, at a contract price of $5.50 per car. This scraper, as might readily be expected, averages only 3.2 cars per day.

Section *C* is worked longwall and two scrapers are used. Here the coal is thin and an average of 3.7 cars per day is produced. The cost, delivered to the main haulage road, is $4.25 per car.

Contrast these costs with those in similar but thicker beds where the coal can be loaded by hand shovel into mine cars. To give an example: A certain bed is 6½ ft. thick, of which 4 ft. is coal. The bed being flat the mine cars are run to the face and loaded by hand shovel. The cost per carload under these circumstances varies from $4.60 to $5.20.

In another instance where the bed is 7.2 ft. thick, 4.2 ft. of the measure being coal, and where the pitch is sufficient to assure that the coal will run on sheet iron the cost varies from $5 to $5.40 per mine-car load. It is necessary in this case to shovel the coal from a platform into the mine car.

Thus in spite of the unfavorable conditions under which the scrapers are operated in this mine the cost of the coal produced by this means is no more and as a rule less than that obtained by any other method employed. At other places the cost per mine car, no matter what the method followed may be, greatly exceeds the cost given above. The comparison is really not fair to the scraper, for if the average costs for the colliery were compared to the scraper costs the latter would show up in a much more favorable light.

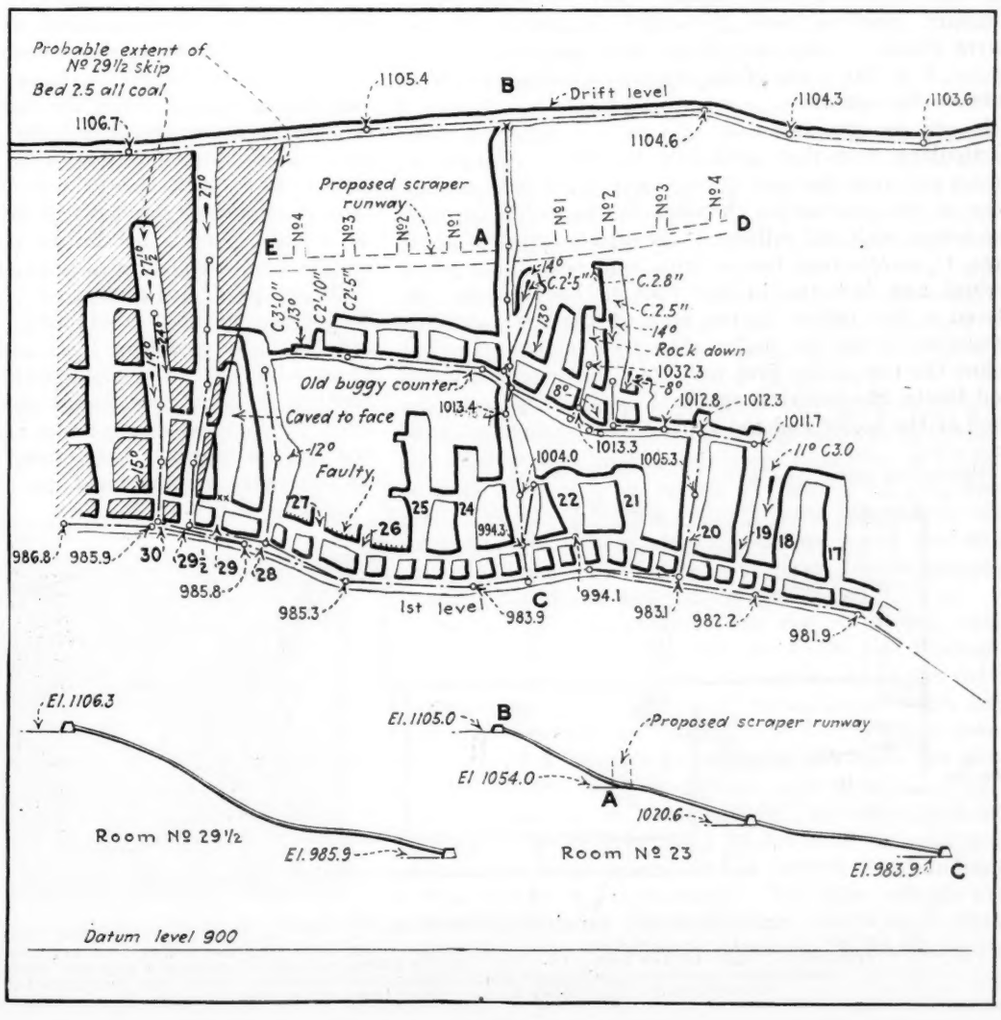
Mining, as everyone knows, involves various problems that crop up from time to time and demand solution. Referring to the map accompanying this article, from the cross-sections near the bottom the conditions that must be met will be readily appreciated. From the point marked *A* to that designated as *B* it is possible for the coal to be slid on sheet iron whereas from *A* to *C* the pitch is not sufficiently steep for this to be accomplished, yet it is too great for mine cars to ascend without the aid of some kind of rope haulage.

In order to overcome the difficulties encountered in mining this coal a scraper will be placed in breast 23 and operated from *C* to *A*. The rest of the procedure planned will be found detailed in the subcaption of the map which illustrates the method to be adopted.

Whether this arrangement will do everything it promises to accomplish remains to be seen. On the face of it, however, the proposition appears to possess marked advantages. Of course, only time and trial can determine whether these are sufficiently great to overbalance the objections.

Scoop-Shovel Operation

From B to A the coal will slide on sheet iron. From A to C it will not, yet the grade, as will be seen, is too steep for mine cars unless some form of rope haulage is provided. The coal will be mined in breast 23 by scraper and at A a heading will be turned toward E and D following the contour of the coal. Scrapers will be placed in both these roads receiving the coal from the sheet-iron troughs by breastways driven up the pitch from each roadway. Coal will be transferred from A by scraper and will be loaded into mine cars at C. In this way advantage will be taken of the pitch where it is adequate, and the scraper will move the coal where the grade is unfavorable—that is, where it is too easy for the sliding of the coal and too steep for the use of mine cars.



Large Combustion Chamber in Rear of Boiler, to Which Heated Air Is Admitted, Increases Efficiency

Air Heated in a Flue Passing Under Combustion Chamber, Is Emitted Through Passages in the Bridge Wall, Causing the Combustion of Unburned Hydrocarbons and Carbon Monoxide

By Alphonse F. Brosky*
Pittsburgh, Pa.

SPEAKING collectively, boilers at the power stations of coal mines give somewhat lower efficiencies than those installed at other industrial plants. Usually but little real excuse exists for the extremely low efficiencies sometimes found.

Losses due to the escape of unburned hydrocarbons to the stack are those which yield most readily to improvements in design. In order to successfully consume the gases given off by coal during the coking process, it is necessary to mix them thoroughly with sufficient air to insure their combustion, raise the mixture to the temperature of ignition and allow sufficient time for their burning before they come in contact with any cold body and become chilled.

In order to obtain these results as well as to diminish the infiltration of air through the brickwork and reduce the radiation from the boiler the H. C. Frick Coke Co. at its Hecla No. 1 mine has adopted the setting shown in the accompanying illustrations. The variation from standard practice here delineated is known as the Barry-Pollins smoke-consuming and power-developing device, J. J. Barry one of the designers, being a machine boss at this operation.

It will be observed that this setting differs in two particulars from that ordinarily installed. A duct, *A*, draws air from the rear of the boiler, leads it under the floor of the combustion chamber *E*, thence up through the bridge wall and delivers it through a series of openings, *C*, at the rear face of this wall near its top. A second and inverted bridge wall or heavy baffle, *D*, placed a few inches in the rear of the first, extends downward from the boiler shell to a point somewhat below the top of the first wall. As this completely fills and blocks the inverted spandrel openings between the shell of the boiler and the setting, the products of combustion leaving the fire are deflected downward between the two walls. They are thus "choked" between two white-hot firebrick surfaces, caused to move at comparatively high velocity, while at the same time they are mixed with the air from the duct which has become heated while passing under the floor of the combustion chamber and upward through the bridge wall.

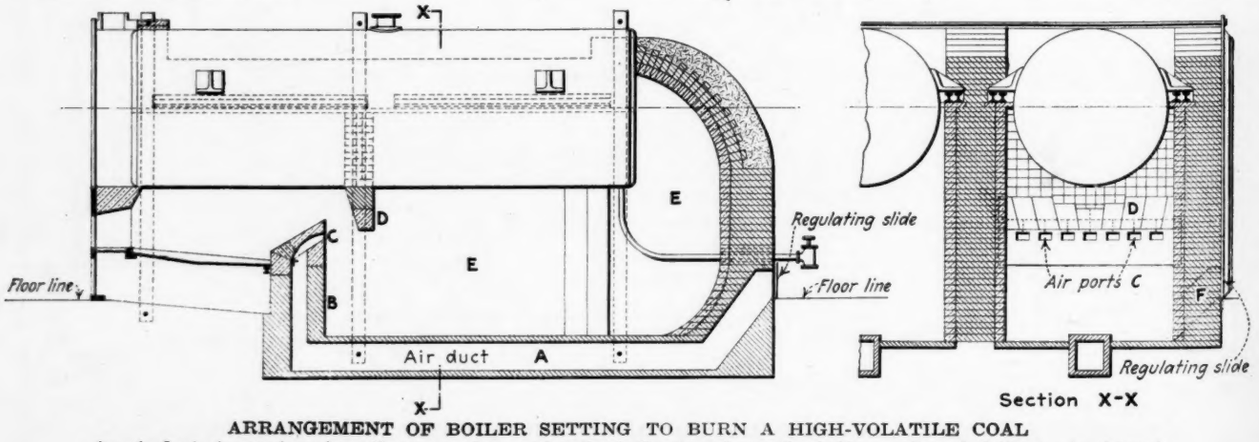
After emerging from the space between the bridge wall and baffle the mixture of gases and air enters the combustion chamber, where its velocity is greatly reduced. Ample time is thus afforded for the burning of whatever constituents are combustible.

In this setting the rear end is not only generous in its proportions but is built in the form of an arch, the brick work of which is comparatively thin. The boiler shell, as may be seen, is supported by brackets resting on rails built into the side walls. Taken as a whole, this arrangement facilitates or rather provides for the expansional distortion of the boiler shell. The rear arch is not covered with magnesia or asbestos but with a mixture of puddled clay and horse manure.

This clay arch covering is applied in several layers, each being allowed to dry thoroughly before the next is placed, the boiler being fired lightly meanwhile. When the clay has been built up layer upon layer until it is almost flush with the brickwork, a finishing coat of cement mortar is applied. This type of covering may be readily placed, its initial cost is slight and the results from its use have been entirely satisfactory.

This type of boiler setting and covering minimizes the losses arising from incomplete combustion and reduces those resulting from radiation. The quantity of air admitted to the bridge wall and thence to the combustion chamber may be readily regulated in accordance with the existing rate of combustion by means of the slide damper at the intake end of the duct. As an alternate arrangement to that shown, applicable

*Bituminous editor *Coal Age*.



ARRANGEMENT OF BOILER SETTING TO BURN A HIGH-VOLATILE COAL

An air duct, A, passing along the warm floor under the boiler travels up the bridge wall and delivers air through openings, C, close by the baffle, D. The burning gases meet this current air and are consumed in the combustion chamber, C, at a point quite remote from the boiler. They are then directed by the rounding end of the boiler to the return tubes after combustion has been completed

where boilers are set singly or in batteries of two each, the duct may be arranged with a side opening, *F*, so as to extend transversely through the bridge wall only. This arrangement is shown dotted in the section *XX*.

Provision for the admission of excess air to the combustible gases within a boiler setting at the exact point where it will do the most good is particularly efficacious at those times when the grates become partly or entirely clogged with clinker. Natural draft at such times is insufficient to draw enough air through the fuel bed to effect complete combustion, and much burnable gas is evolved. This setting therefore increases the all-day or average efficiency of the unit by raising it at those times or during those periods when it would normally be lowest. Application of this setting at the Hecla No. 1 plant has proved so conclusively successful that the Frick company officials felt warranted in adopting it as a standard for installation at those plants to which it is suited.

In Retimbering a Shaft Bottom, Posts and Foot Timbers Are Set in Deep Trenches

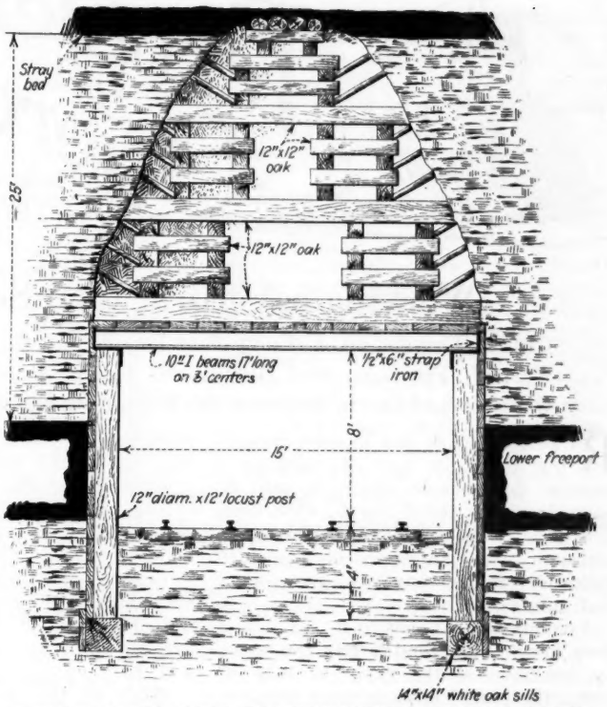
THE Lower Freeport bed as mined by the Younghiogheny & Ohio Coal Co. in Mine No. 1 at Amsterdam, Ohio, is characterized by an exceptionally weak roof. This requires an excessive amount of "timbering" even in unimportant headings, 5- and 6-in. I-beam collars being used, supported by 8- or 10-in. sawed oak legs and lagged with 3 x 5-in. sawn timber.

Eighteen years ago, when this 284-ft. shaft was sunk, wooden timbering was used to support the bottom, as was then the almost universal practice. In later years, however, this perishable material proved inadequate to prevent squeezing. An effort was made to check the subsidence by placing 12-in. I-beam collars on 12 x 12-in. wooden legs. This failed because the posts gradually settled, allowing the weight of the loose strata to buckle the collars.

The main hoisting shaft is 10 x 22-ft. in dimensions and is wood-lined. It has two hoisting compartments and one for intake air, all three being of equal size. Each hoisting compartment is fitted with a single-car self-dumping cage provided with the usual safety devices and the equipment necessary to operate in conjunction with the automatic cagers. The cages are handled by a pair of 18 x 32-in. Litchfield hoisting engines supplied with steam at 100-lb. gage pressure. These engines are direct connected to a 7-ft. wooden-lagged drum, the unit being provided with a Roybel emergency governor and steam brake. The airshaft is provided with a single-decked cage operated by a pair of 8 x 10-in. second-motion engines. It is used for emergency purposes only.

LOCUST POSTS IN AMSTERDAM SHAFT BOTTOM

Timbers are 12 in. in diameter and 12 ft. long and are set on 14 x 14-in. oak sills the top of which are sunk 4 ft. below the top of the rail.



MEANS OF HOLDING TOP WEAKENED BY STRAY BED

No reliance is placed on the weak material under coal but a footing is sought 5 ft. 2 in. below the top of the rail. Criss-cross timbers support the arch formed by the rock that has rattled down up to a stray coal bed 25 ft. above the measure worked.

On the south or load side of the bottom the heading was originally 17 ft. wide. The shaft timbers were carefully reinforced before the legs of the old timber sets were removed by dynamite. This latter operation was slow inasmuch as the old timbers supported loose strata extending upward 25 ft. to an overlying stray coal bed. As fast as this loose material was cleaned up a trench on each side of the heading was dug to solid rock, footings placed and timbers set. All timbering was completed as the work progressed.

The method used in supporting this shaft bottom is a departure from the practice usually followed in timbering. Locust legs with a minimum diameter of 12 in., carrying 10-in. I-beam collars are placed on 3-ft. centers. This material was readily available and in the preliminary plans and estimates it was found that this method of framing would prove adequate for the purpose throughout the probable life of the mine.

The framing was extended for 500 ft. on the south side of the shaft and is lagged behind the legs throughout this entire distance. On the north side of the shaft the work was less complicated, as sufficient width and headroom afforded an opportunity to carefully reinforce the old framing. The illustrations show the general plan of this work as well as some details.

By working two shifts of men this job was completed in ninety days. More than 15,000 tons of rock and other refuse were hoisted to the surface and hundreds of tons gobbed in old workings. The mine officials are to be congratulated that not a man was injured while prosecuting this somewhat hazardous undertaking to a successful conclusion.

Problems of Operating Men

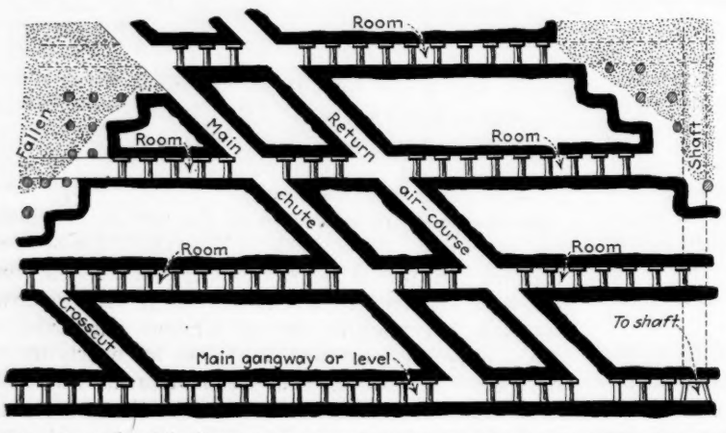
Edited by James T. Beard

Working a Vertical Coal Seam

Chutes Driven on a Forty-Five-Degree Pitch and Rooms Turned Forward and Back, on Twenty-Foot Centers—Coal Worked Out in Stopes on the Retreating System of Mining

REFERRING to the inquiry regarding the best way of working a vertical coal seam, which is said to vary from 10 to 15 ft. in thickness, *Coal Age*, Nov. 3, p. 726, allow me to outline a plan I have seen in successful operation, in working coal lying at a high angle.

Assuming that headings or levels have driven right and left in the seam, as described in the reply to this inquiry, the plan I have in mind involves driving a pair of chutes on a 45-deg. pitch. These chutes, as shown in the accompanying figure, are driven up from the level, starting a short distance from the mouth of the cross-tunnel connecting the seam with the shaft, or from the bottom of a slope driven in the seam itself.



VERTICAL PROJECTION SHOWING CHUTES AND ROOMS WORKED IN STOPES

Rooms Driven as Levels

As indicated in the figure, rooms are turned forward and back from these chutes, at regular intervals. The rooms are turned on 20-ft. centers and driven about 4 ft. in height, leaving a 16-ft. pillar of solid coal between consecutive rooms or levels.

The rooms are driven the full width of the seam, but the height is kept low to afford a better support for the footwall, which in this case is said to be weak. Also, driving low rooms requires less timber in the first working.

The general plan is to work out the coal on the retreating system, by driving the rooms to the boundary and working back on the pillars, which are coal is left above and supported by timbers, in order to afford sufficient protection to the men working below.

In driving the rooms, crosscuts are driven at such distances apart as will comply with the state law. These crosscuts are necessary to keep the ventilating current up to the working faces, in the same manner as when working a level seam. The crosscuts are sometimes cut in the form of a stairway to enable men to pass from one room to another.

The same system can be employed whether the seam is reached by a cross-tunnel driven from a shaft, or a main slope is driven in the seam itself. In the latter case, however, the rooms driven back from the chute toward the slope are stopped at a distance that will provide a wide pillar for the protection of the slope.

As all the rooms are driven the full width of the seam, greater safety is provided when substantial cribs are built at regular intervals in each room. This provides a vertical chain of cribs, one above the other, in each consecutive room.

One disadvantage in chute work is the necessity of carrying all the timber up the chutes. Care must be taken not to drive the rooms too high or too far for safety. I would suggest leaving as small a pillar as will be safe and giving special care to the timbering of the rooms and the placing of the crossbars.

River Herbert West, "MAC."
N.S. Canada.

Another Letter

I HAVE been reading the inquiry of a Colorado engineer, asking for the best method of working a vertical coal seam in which the coal ranges from 10 to 15 ft. thick. The writer states that the seam was originally opened by a slope and cross-tunnel at a depth of 100 ft. below the surface. Later, a shaft was sunk to a depth of 200 ft. and the seam tapped by a second cross-tunnel. From each of these openings, levels were driven to the right and left in the seam.

The reply to the inquiry takes up the question of working out the coal, by driving rooms to the rise from these levels which is practically the only thing to do under the conditions named. The rooms are opened by first driving a loading chute at a proper angle for loading and then widening out the room to the full width of the seam and working the coal by overhead stoping.

Allow me to suggest, here, that it would have been a far better plan to have opened this seam by sinking the shaft in the coal. Then, the shaft would have paid for itself by the coal taken out and there would be no rock to hoist, which is all deadwork in sinking a rock shaft or rock slope.

As soon as the shaft sunk in the seam has reached a sufficient depth to provide good protection for the workmen, levels should be driven to the right and left from the shaft and the coal worked out by stoping, in the usual manner. In adopting this plan, it will not be necessary to open rooms to the rise. To insure safety, the levels should be driven to the boundary before stoping is commenced, the coal being taken out on the retreating plan.

It is only necessary to add that the work of driving the levels and stoping out coal should progresss downward, the upper levels being worked first and made secure by substantial crossbars and cribs to protect the men below.

Twinton, Tenn. LEE JONES.

Certificate vs. Experience

Holding certificate does not make a man more competent in the mine—Experience the chief factor required in successful mining—Practice in English mines—The vest-pocket ticket in place of certificate.

REGARDING the question of certification of mine foremen, assistant foremen and firebosses, it is the farthest from my thought to attempt to destroy any advantage that has been gained through the amendment to the certificate law in Pennsylvania.

At the same time, it must be admitted that the holding of a certificate does not make a man any more proficient than he was before he obtained the paper. It simply makes him eligible for appointment under the old law, which required the certification of all mine foremen, assistant foremen and firebosses.

Foremen Need Both Theory and Practical Experience

Assuming that the certificate has been obtained by honest study and the passing of a thorough examination before an honest examining board, it is true that the study and training through which the candidate passed before taking the examination has given him a knowledge of the theory and principles of coal mining.

On the other hand, where the holder of a certificate lacks the experience that alone can make him a successful foreman, he has yet to gain the one chief factor necessary in supervising mining work. In saying this, I do not wish in any wise to discount the value of theoretical knowledge.

The successful mine foreman is the man who combines with his practical experience a knowledge of the principles of mining. He must understand the rudiments of geology, mechanics, gases, ventilation and be able to apply that knowledge to the work underground.

I have known men who could not write out or sign the reports they were required to make, and yet they hold certificates of service granted them by reason of their practical knowledge and experience in the management of underground work.

Must Have Executive Ability

My conclusion is that the understanding of conditions in mines and having an intelligent knowledge of the safe and economical methods of dealing with them, together with the executive ability required in bossing, are the prime factors in the mining of coal today.

It is not the scroll upon the report book, which marks the signature of the man who made the examination of a section of a mine, that shows his ability to produce coal. Neither is it the possession of a certificate. In place of these, it is the careful foresight into conditions that surround the work and which goes far to prevent accidents that may tie up, perhaps, the entire mine.

Let me say to the young man who has just obtained his certificate, Strive for an appointment where you will have the benefit of older and more experienced men than yourself. By so doing, you will learn much that you did not know before and which will be of service to you in the years to come.

On several occasions, I have appointed an uncertified man to perform the duties of my regular fireboss who might be sick for a time. My mind was then always at rest, because I knew the man I appointed had the knowledge and the experience to perform the work.

American vs. English Practice Regarding Certification

Compare, for a moment, our American practice, in this regard, with the prevailing custom in English mines, which are worked under greater disadvantages than our own and yet produce coal on a paying basis. If my understanding is correct, the mine manager is the only official required to possess the government certificate.

The "overman," who corresponds to our mine foreman, and the fireboss, though held morally responsible for the performance of their respective duties, have nothing to certify them but a vest-pocket ticket given them by the manager when appointing them to the positions they hold.

The overman performs all the work that falls to the lot of our mine foreman. When in the mine, there is no time given to discuss topics of the day. Every minute is devoted to the study of what is required to get out the coal and keep the mine in a safe condition. Let me say, here, that the attitude of both the overman and the fireboss, in this regard, is reflected in the manner in which every man in the mine performs his work.

The Vest-Pocket Certificate

As I have just remarked, neither of these men hold more than a vest-pocket ticket certifying to their ability to perform the duties in their charge. Should one of them not come up to the standard, this ticket is taken from him and given to another man, who is at once put in his place.

In my opinion, this practice is well worthy of our consideration in connection with the matter of certified mine officials. A certified manager who appoints his own staff to operate the mine will seldom fail, because the responsibility rests in his own hands and the experience of men will determine their appointment.

Gans, Pa. R. W. LIGHTBURN.

Another Letter

False economies, the result of lack of study—Present depression and labor unrest disheartening to operators—Remedy lies in patient study of all conditions—Maintain every incentive to study.

MANY readers of *Coal Age* have given their opinions in regard to the certification of mine officials, which most of the writers seem to favor strongly. To say the least, the requirement that mine officials shall be certified is progressive.

Certification is an incentive to study. The reason that many false economies are being practiced, in the mining of coal, today, is not solely the result of the present industrial depression; but is largely to be attributed to the lack of study and reading, on the part of mine officials in charge of operations.

The present depression, together with the prevailing unrest of labor, must be very disheartening to operators and mine officials alike. In combating this condition, many officials, particularly those of the uncertified class, are adopting ways and methods that must prove expensive in the end. They do not realize that these are false economies, because of their lack of acquaintance with the practical side of the mining problem.

Remedy Lies in Study

Regarding the situation from every angle, my conviction is that the remedy lies chiefly in doing all in our power to increase the incentive to study, on the part of mine officials of every class.

At this point, let me advise all certified men not to get the idea that they *know it all*, and develop a spirit of disregard for the orders given them by higher officials who, it may be, hold no certificate and yet are probably well educated men having trained minds.

While an order coming from an uncertified superintendent may not appeal to a certified foreman as being the most efficient method to follow, it must be remembered that the instructions of the higher official are to be obeyed.

The fact that a mine superintendent has not the same opportunities to study the situation and learn the ways and means best adapted to the performance of certain work, should enlist the sympathies and interest of those mine foremen who have made a study of the principles of mining, and should lead them to a different attitude toward their superior officers.

Need of Broadminded Men

It is my firm belief that foremen who are broad minded can always find some way to approach their superintendent on matters regarding which they differ. It will generally be found that these superintendents are educated men and, as such, are broad minded and when properly approached will gladly listen to suggestions coming from their foremen.

It is natural and right that a mine superintendent would not take kindly toward any dictation from a foreman, and that must be avoided if there is to be no friction between these two officials.

By way of suggestion, let me ask, how would it be if operators or mine superintendents were to require quarterly or monthly reports from their foremen, and request that these reports should embody any suggestions that the foreman might think would add to the efficiency of the work.

If this plan was adopted, it would

eliminate the idea that the foreman was dictating to his superior officer, and would go a great ways toward establishing friendly and cordial relations between the men.

Again, we have heard in the past and will continue to hear much regarding governmental control of mines. There must be a cause for this and I repeat, let us study the situation carefully to ascertain the cause and its remedy. The more we study, the more we help to advance the interests of coal mining. Let us, then, maintain every incentive to study on the part of mine officials. W. H. LUXTON.

Linton, Ind.

Mine-Car Hitchings

Many kinds of coupling links on the market—Single links cheapest and most reliable—Three small links and two clevises give good satisfaction.

THERE is much of interest in the letter of James Thompson, *Coal Age*, Dec. 8, p. 927, which draws attention to the delay and annoyance caused by the bending of car links so common in mining practice. At the close of his letter Mr. Thompson has suggested the need of employing some means of overcoming this trouble.

From the standpoint of convenience as well as safety, the matter of adopting a good form of link for a car hitching is one worthy of careful study and consideration. Most of us will agree that every kind of hitching on the market has its advantages and disadvantages.

THE SINGLE-LINK HITCHING

The single link has the advantage of being cheap and, if kept in order, is reliable on haulage roads having varying grades where the trips hauled are subject to much jerking, which is hard on the couplings.

The chief difficulty, in use of the single link is keeping the links in safe working order. In speaking of the single link, I refer to the hitching commonly known as the "link-and-pin" coupling. I can hardly agree with Mr. Thompson, however, who regards this as far superior to the hitching consisting of three small links and two clevises.

It is true, as he has clearly explained, the single link is easily bent by its hanging low and being jammed when the bumpers come together. This not only causes a dangerous strain on the pin, bending it so that it cannot be quickly and safely put in place when making a coupling, but the bent link must be straightened before being again used in making a coupling.

THREE LINKS AND TWO CLEVISES

In my experience, the three small links and clevises have proven so convenient and safe that, taking everything into consideration, it pays to go to the extra expense of using them. As now made, this form of coupling has been so improved as to eliminate the chief difficulty found in its use, which was the danger of losing part of the coupling. Formerly, that was a drawback that led many to discard that form of coupling for a single link.

As is well known, when a coupling is to be made with the single link, the latter must be lifted and guided into the hole of the approaching bumper. Many a trip rider has lost one or more fingers, or been otherwise maimed when performing this act.

My chief reason for regarding the three links and clevises as a better form of car hitching is the advantage it affords, by enabling one to make a safe coupling. When doing this, the clevise is held by the hand in a position where there is no danger of the fingers or hand being caught when the bumpers of two cars come together.

Pikeville, Ky. GEORGE EDWARDS.

Inquiries Of General Interest

Removing Gas Accumulated on Falls

Tendency of Gas to Rise Makes Removal from Falls Difficult—Bituminous Law (Penn.) Requires Boreholes Sunk from Surface—Will This Method Prove Effective in Exhaustive Ventilation?

HAVING seen many practical problems satisfactorily solved in *Coal Age*, I am writing to gain information in reference to one point of the Bituminous Mine Law, relating to the removal of gas that has accumulated on falls. The section of the law to which I refer reads as follows:

In any mine where it has been found impracticable to remove explosive gas from the inaccessible top of a fall, it shall be the duty of the mine foreman to make this fact known at once, in writing, to the superintendent, who shall immediately report the same to the inspector, requestng him to make a prompt personal investigation. If the superintendent and the inspector are unable to devise means to have said explosive gas removed within a reasonable time, the inspector shall direct that a borehole, or boreholes, not less than 6 in. in diameter, be drilled from the surface to a high point on said falls, in order to give the gas an opening to escape to the surface.

Now, the mine in which I am employed is ventilated by an exhaust fan, which means that the mine pressure is below that of the atmosphere. I have been studying over this section of the law and it seems to me that it cannot apply to mines where the exhaust system of ventilation is employed for reasons hereafter set forth.

Clearly, in a mine ventilated by a blowing fan, the pressure in the mine being greater than that of the atmosphere outside, the gas accumulated above the fall would be forced out through the borehole and escape from the mine. But, where the mine is ventilated, as is ours, by an exhaust fan the reverse of this would take place, would it not?

The question I want to ask is, Will it be safe to try to remove a body of explosive gas from the top of a fall, in a mine ventilated on the exhaust system, according to the manner required by law? If this is not the method to be employed in such mines, kindly explain what means can be used to effectually remove the gas from high falls and keep them clear.

I shall greatly appreciate any information *Coal Age*, or its readers, can give on this question, as I am studying to prepare myself for the next examination and wish to be informed on the real meaning of the law. STUDENT.

Brownsville, Pa.

This correspondent has the correct idea in regard to the relative effect of the exhaust and blowing systems of ventilation. As he has stated, in the exhaust system, the mine is ventilated under a pressure below that of the atmosphere, while the blowing system causes a mine pressure above that of the atmosphere. The result is that when the fan is exhausting outside air will be drawn down the borehole into the mine. On the other hand, in the blowing system of ventilation, the gas and mine air will be forced out by the pressure and escape through the borehole into the outer atmosphere.

In our opinion, the section of the law quoted by the correspondent applies equally in each of these cases, as far as the movement of the gas from the falls is concerned. While in the blowing system of ventilation the gas will be forced out, at once, into the outside atmosphere and be of no further trouble in the mine; in the exhaust system the borehole will provide an entrance for a strong current of fresh air from the outside, which will blow the gas down from the falls and keep the latter clear from any further accumulation at that point.

The only difference in these two instances is that a mine using the exhaust system of ventilation will require a more ample air current in circulation, to dilute and carry away the gas generated and accumulated on the falls. In the blowing system of ventilation, on the other hand, inasmuch as the gas would escape from the mine at once, there would not be required as great a circulation of air in the mine, on that account, other conditions being the same.

Examination Questions Answered

Miscellaneous Examination Questions

(Answered by Request)

QUESTION—*On entering upon your duties as mine foreman, what would you consider to be your duty, in order to make a reputation for yourself and do justice to both employees and employer? State fully.*

ANSWER—By giving careful attention to the reading of the reports of the firebosses and seeing that any dangers they may have found are promptly removed and that the men are not permitted to enter such places, until the same are reported safe, the mine forman is fulfilling his first duties in the mine. By seeing that discipline is maintained and every man performing his work properly, the miners mining and loading their coal safely, and the drivers hauling the same to the bottom and bringing the needed supplies back into the mine, the foreman will earn a reputation for himself, in the eyes of his employer, in proportion to the way in which he is able to maintain the output of the mine at a reasonable cost. In justice to every employee in the mine, the duty of the mine foreman is to see that the working places are well ventilated and every requirement of the law fulfilled.

QUESTION—*In a mine employing a continuous air current for ventilation and the air-courses where the use of timber is necessary for support of the roof, how would you instruct your men in reference to working their rooms? Would you use the same method on the split system? Explain.*

ANSWER—The real meaning of this question is uncertain. However, assuming that, in the adoption of a continuous system of ventilation throughout the mine and in the endeavor to shorten the length of air travel as much as possible, the plan is adopted of carrying the air through rooms that have holed into each other, it will be necessary to give the men particular instructions, in reference to driving their rooms at a uniform width and timbering them securely to prevent their falling in before the next adjoining rooms have holed into each other and thus opened a new air-course for the current to travel. Unless these precautions are taken, in driving and timbering all rooms, a fall in any one room might cut off the circulation for the entire mine.

QUESTION—*Why is the use of black powder more dangerous, in blasting coal in dusty and gaseous mines, than permissible powder? Explain fully.*

ANSWER — Black powder produces much flame, which is projected from the hole when a shot is fired. On the other hand, the composition of permissible powder is designed to render it more or less flameless, by reason of the large proportion of nitrates used in its manufacture. Again, a smaller charge of permissible powder will do the same work as a much larger charge of black powder and produce a less concussion of the air, which will raise less dust and reduce the liability to explosion by reason of the dust suspended in the air.

QUESTION — *(a) What atmospheric conditions are indicated by the following instruments: Anemometer, barometer, hygrometer, thermometer, water gage? (b) In what way will variations of either instrument affect the others?*

ANSWER — (a) The anemometer is used to determine the velocity of the air current passing in a mine, while the water gage is used to determine the ventilating pressure. The only instruments used to indicate atmospheric conditions are the barometer, hygrometer and thermometer. The barometer indicates the pressure of the atmosphere, at the point of observation. The hygrometer determines the relative humidity of the atmosphere, or the percentage of saturation, due to the presence of moisture in the air. The thermometer makes known the temperature of the air.

(b) The hygrometer and thermometer, showing as they do the relative humidity and temperature of the air, indicate only local conditions and in no appreciable way affect the other instruments, except the reading of the barometer requires a slight correction for temperature, as indicated by the thermometer, if extreme accuracy is desired.

QUESTION—*An air-course is 5 ft. high and 7 ft. wide. An anemometer held near the top of the air-course shows a velocity of 900 ft. per min. When held near the center, the velocity is 1,000 ft. per min., while near the sides and the bottom the reading is only 850 ft. per min. What is the estimated amount of air traveling through this airway?*

ANSWER—There is no exact rule for determining the average velocity of the air current in an airway. At the best, the reading of an anemometer is only an approximate indication of the velocity of the passing air. In every case, the observer must use his judgment. It is more important to always employ the same method when taking measurements of the air. To be more accurate, allowance would have to be made for the space taken up by the observer's body, in the airway.

A common practice is to move the instrument about in the airway while taking an observation, giving say, 12 sec. to each position at the center and the top, bottom and sides of the airway; but never holding it nearer than from 8 to 12 in. from any bounding surface. The final reading of these five positions will give what may be assumed to be an average reading for a minute.

From the data given in this question, the full sectional area of the air-course is $5 \times 7 = 35$ sq.ft. Then, assuming nine tenths of this as the effective area for the velocity observed in the center of the airway, gives for the volume of air passing, in this case, $0.9 \times 35 \times 1{,}000 = 31{,}500$ cu.ft. per min.

QUESTION—*How must the power be increased to maintain a constant current of air in circulation, in mines where the airways are continually increasing in length?*

ANSWER — Assuming there is no change in the mine, except that due to the lengthening of the air-courses, the power required to maintain a constant flow of air, or a constant velocity in the airways, must vary as the increasing length of the same. For example, if 10 hp. produces a given circulation in 10,000 ft. of airway, 15 hp. will be required to produce the same circulation when the airways have increased to 15,000 ft.; and 20 hp. will be required when the length of the air-courses has reached 20,000 ft.

QUESTION—*What will be the area of fire grate of a furnace that is to supply 50,000 cu.ft. of air per minute, against a 2-in. water gage, when the depth of the furnace shaft is 200 ft.?*

ANSWER—First, find the horsepower on the air required to pass 50,000 cu.ft. of air per min., against a 2-in. water gage, which is $(50{,}000 \times 2 \times 5.2) \div 33{,}000 = 15.75$ hp.

Now, calling the depth of the shaft D. in feet, and the horsepower on the air H, the area (A) of the grate surface required is found by the formula

$$A = \frac{34H}{\sqrt{D}} = \frac{34 \times 15.75}{\sqrt{200}} =$$

37.86, say 38 sq.ft.

QUESTION—*With furnace ventilation, how much more air will pass in a shaft 300 ft. deep than in one 50 ft. deep, other things being equal?*

ANSWER—For the same average temperatures of the upcast and downcast shafts and the same barometric pressure, the mine ventilating pressure varies with the depth of the shaft; and, since the quantity of air in circulation varies as the square root of the pressure, the quantity of air in circulation will vary as the square root of the depth of the shaft. In other words, the quantity ratio is equal to the square root of the depth ratio, which is 300 : 50 or 6. Therefore, in this case, the quantity ratio is $\sqrt{6} = 2.45$. That is to say, under the same conditions, a 300-ft. shaft will pass 2.45 times the quantity of air that will be passed by a 50-ft. shaft.

The Weather Vane of Industry

News Notes Chronicling the Trend of Industrial Activities on Which Depends the Immediate and Future Market for Coal

THROUGH its employment service the U. S. Department of Labor announces that as a result of its industrial survey for the month ended Jan. 31, 1922, the following classifications showed increases in employment: Food and kindred products; leather and finished products; paper and printing; liquor and beverages; chemicals and allied products; metals and metal products other than iron and steel; vehicles for land transportation; and miscellaneous industries. The industries which show a decrease are textiles and their products; iron and steel and their products; lumber and its manufacture; stone, clay, and glass products; tobacco manufactures; and railroad repair shops.

The survey is based on figures taken from the larger industrial payrolls of the country. The statistics on which its computations are based are gathered each month by the department's special agents in 65 principal industrial centers. In all 1,428 firms, each usually employing more than 500 workers, or a total of 1,600,000, are comprised in the survey. On Jan. 31 these 1,428 firms had 63,400 more employees on their payrolls than they carried on Dec. 31, an increase of 4.2 per cent.

Employment conditions fail to give any indication of the substantial improvement in business activities predicted for January. The figures last month were obtained during inventory period, particularly those in the automotive industry. The slight change in the totals of all the groups shows a downward trend. Increase in employment in metal products other than iron and steel, and miscellaneous industries, is the encouraging feature of this month's survey.

Reports from 231 of the principal centers show no general improvement in employment conditions. Industry is hardly holding the gains made during the past four months, and is, therefore, absorbing but few, if any, of the workers released from seasonal activities and the unemployed caused by the usual climatic conditions of this season of the year.

The feeling that there will be a decided change for the better by early spring is manifested by every section of the country, and seems to be based on real evidence of prosperity and not mere optimism.

South Central Region Not Hopeful

Actual payroll data of 332 industrial concerns in Kentucky, Tennessee, Alabama and Mississippi employing 105,244 show a net increase for the month of ½ of 1 per cent. Seventy-five per cent of the textile mills are running full time, 20 per cent part time and 5 per cent shut down; 50 per cent report outlook for improved business unsatisfactory. Fifty per cent of the lumber mills are running full time, 25 per cent part time or with reduced forces and 25 per cent shut down. About 50 per cent report outlook for improved business unsatisfactory. Three hundred concerns representing most all of the 14 groups of industries show that 65 per cent are running full time, 25 per cent part time or with reduced forces and 10 per cent shut down; 40 per cent report outlook for improved business unsatisfactory.

INDUSTRIES REPORTING AN INCREASE IN EMPLOYMENT IN JANUARY, 1922

Industries	Amt. of Inc.	P.c. Inc.	Weight*
Vehicles for land transportation	63,204	58.4	11
Leather and its finished products	2,089	3.7	3.7
Metals and metal products	2,254	2.8	5.2
Paper and printing	132	2.6	3.24
Food and kindred products	2,319	1.8	8.45
Miscellaneous	4,286	1.7	16.5
Liquors and beverages	10	1.2	0.05
Chemicals and allied products	598	0.8	4.7
Total	74,892		

INDUSTRIES REPORTING A DECREASE IN EMPLOYMENT IN JANUARY, 1922

Industries	Amt. of Dec.	P.c. Dec.	Weight*
Railroad repair shops	4,286	3.9	3.8
Tobacco manufacture	803	2.6	1.9
Stone, clay and glass products	149	1	0.9
Lumber and its manufacture	74	0.3	1.5
Textiles and their products	949	0.3	17.5
Iron and steel products	7,130	0.21	21.4
Total	13,391		

*Per cent employed Jan. 31 to total reported employed in 14 groups.

Mid-Atlantic Conditions Improved

Industrial revival from the point of extreme depression has not been marked in the Middle Atlantic district during the first month of 1922. Many industries have shown a slight increase in operations, particularly the building industry. Some industries show a slight decrease in operations, attributable in great measure to the usual dullness during the inventory period. Many industries have made slight gains since the general shutdown during inventory and there are many reports with good signs of increased activity. The consensus of opinion forecasts betterment in the near future with gradual improvement in most lines. Idleness has been greatly reduced in certain sections.

South Atlantic District Gloomy

Judging from small firms reports in 18 cities in the South Atlantic district the month from Dec. 15 to Jan. 15 shows a drop in employment. Textile mills show discouragement as to the outlook of business in their lines. Most of the mills are running with fairly full forces, but orders are not being received to a sufficient extent to warrant much optimism as to the outlook. The lumber situation throughout the South is unsatisfactory. Five hundred and ninety textile mills in Virginia, North Carolina, South Carolina and Georgia report 151,564 employees on their payrolls Jan. 15, compared with 151,818 on Dec. 15, a decrease of 254.

Manufacturing Gains in Midwest

The starting of the new year seems to have brought about a slow but sure increase in the amount of manufacturing and a general resumption of activity in all building trades lines in Michigan. The furniture industry is putting large numbers of skilled workmen at work. The automobile industry is estimated as working 60 per cent of normal, with continued feeling that conditions will improve gradually. One railroad shop which had been working short time opened at full capacity Feb. 1 with full crew.

Outlook Bright in New England

Building reports for December in the six New England States show an increase over the previous month of $8,070,500. The value of December contracts was $26,474,100, of which $17,358,700 was for residential buildings. General opinion is that periods of increased business and industrial activity will prevail. Textile mills at present time are operating at nearly normal capacity. Wool products look bright for the future. Shoes and leather show a slight increase.

United Mine Workers Are Riding for a Hard Fall, Is Belief in Washington

By Paul Wooton
Washington Correspondent of *Coal Age*

THERE has been a pause during the last week in the wordy controversy in government circles revolving around the labor situation in the coal industry. The adherents of each of the conflicting interests apparently are marking time waiting to see what the miners do at Indianapolis. Speculation continues as to the possible meaning of John L. Lewis' appeal. Some think it is a bid for financial support. Others are of the opinion that he simply wants to make the record clear that he has left no stone unturned in furthering the cause of the mine workers.

Preparations on the part of British exporters to take advantage of the strike situation to ship coal to north Atlantic ports has raised the question as to the possible attitude of the British miners. Since American miners made no protest during the British strike when the United States was exporting 2,000,000 tons of coal a month and in view of the existing British labor situation there is a widespread opinion in Washington that there will be no interference from that source with the shipment of British coal to the United States. It is estimated that 2,000,000 tons is the maximum monthly rate that such shipments could attain.

With the increasing certainty that there will be a strike, closer scrutiny has been given to the actual output that can be expected from the non-union fields. From the non-union territory proper it is probable that the shipments at the outset cannot exceed 4,500,000 tons weekly. This is assuming that there will be no interference with its distribution. Since it is taken for granted that some of the outlying fields will be back at work soon after the strike is called, an ultimate output of 6,000,000 tons can be attained, in the opinion of disinterested coal specialists. Their estimates of the needs of the country, however, exceed those of the operators. They believe that nearly 9,000,000 tons will be required to run the country and keep up export shipments. This will mean that some 3,000,000 tons weekly must be taken from stocks.

Even if there should be no additions to the 55,000,000 tons now estimated to be in stock, a number of weeks must pass before any acute shortage is likely to develop. To assume that stocks will be materially increased is looked upon in government circles as counting chickens before they are hatched, but since advice is coming from several quarters urging consumers not to be frightened into paying increased prices, as the strike will be of short duration, it is possible that the addition to stocks will not be as great as is generally expected. Practically all the reliable agencies are urging the accumulation of as large stocks as possible prior to April 1.

It is pointed out that figures as to coal stocks are deceptive in that stocks are inequitably held and, like oil in a pipe line, there are some 20,000,000 tons entering into the stock total which do not enter into actual consumption. The opinion is expressed in government circles that coal operators in the face of a crisis of this kind can do much toward effecting equitable distribution of the coal they ship.

In calculating stocks on hand attention is called to the fact that there are 1,017,000 tons of byproduct coke on hand. Since these plants are in the vicinity of large consuming centers, they could be relied upon to furnish a supply of domestic fuel equivalent to one week's production of anthracite.

There is some reason to think that the American Federation of Labor is not highly pleased with the way the coal-labor situation is being handled. The belief is stronger than ever that the United Mine Workers are riding for a hard fall.

To Investigate Wages and Cost of Living Among Anthracite Mine Workers

WAGES and the cost of living in the anthracite industry, it is reported, are being studied by the National Industrial Conference Board, the headquarters of which is at 10 East 39th St., New York City. The board hopes to obtain data from practically all anthracite producers, and it is said that a field investigation of living costs in six representative cities and towns is now under way.

As the board has already completed an inquiry into wages in twenty-four manufacturing industries and is reported to be engaged in an examination of wages and working conditions on the railroads, it is supposed that the board felt that data from the anthracite industry would prove of general interest for purposes of comparison.

Increased Coal Shipments Cause Gain of 5,453 in Freight Car Loadings

DUE PRINCIPALLY to increased shipments of coal, loading of revenue freight totaled 743,728 cars during the week ended Jan. 28, compared with 738,275 cars during the previous week, or an increase of 5,453 cars, according to reports by the American Railway Association. This also was an increase of 42,123 cars compared with the corresponding week in 1921, but a decrease of 59,604 cars compared with the corresponding week in 1920.

Coal shipments during the week of Jan. 28 totaled 180,966 cars, which was an increase of 16,875 cars over the week before and 17,536 cars in excess of the corresponding week in 1921. It was, however, 7,949 cars below the number shipped during the same week in 1920. Coke shipments also increased 235 cars over the week, before which brought the total to 7,502.

Reports from the railroads of the country show that 489,842 freight cars were idle on Jan. 31, compared with 555,353 on Jan. 23, or a reduction of 65,511. Surplus coal cars numbered 145,913, a reduction of 38,086 within the week. A reduction of 246 cars, which brought the total to 4,296, was reported for coke cars.

State of Alabama Offers to Buy Coal Mines To Provide Work for Idle Convicts

A TENTATIVE offer to buy and operate the properties of the Montevallo Mining Co., recently placed in the hands of a receiver, has been made by Governor Kilby and the State Board of Control and Economy, in charge of the care and working of Alabama convicts. Since the receivership the convict labor used at the company's mine has been replaced by free labor and the state finds several hundred convicts on its hands with nothing to do. With the object of providing employment for these prisoners and others from time to time the state proposes to buy the property of the bankrupt and operate it.

The offer provides that the state assume all liabilities of the company, aggregating $574,048.47 as listed, and pay $84,551.53 in cash, which represents the difference between liabilities and assets as scheduled. The inability of the Montevallo company to relieve itself of the burden of steady employment for the convicts regardless of the market conditions which prohibited disposition of the output on such a scale is alleged to be largely responsible for the failure of the company, which now has 32,000 tons of high-grade domestic coal stocked at the mines.

Despite War Law, Government Must Pay Market Price for Requisitioned Coal

THAT the United States Government must pay the market price for coal requisitioned by it, war laws to the contrary notwithstanding, was in effect the ruling handed down by the U. S. Circuit Court of Appeals sitting in Cincinnati on Feb. 7, when a decision was announced on the appeal of the government against the C. G. Blake Co., a Cincinnati concern. The company had won a verdict in a trial before Judge John Weld Peck in the district court and was awarded several thousands of dollars as a difference between the market value of the coal and the allowance made by the Navy Department under section 10 of the Lever Act. The record in the case shows that the value of the coal in the open market at the time it was taken by the government was $5.60 a ton, while the navy fixed the price at $4. Under the law the coal company accepted the three-quarters of the value fixed by the navy and then sued for the difference between that and the market price.

The same company has filed another suit seeking approximately $31,000 for coal that was taken over between October and December, 1920—a difference between the government allowance of $4 a ton and the company's valuation, ranging from $5.60 to $13.70 a ton. The point at issue in this case is whether the inland or the tidewater price for the coal should rule. It is the argument of the company's attorneys that the government should pay as much for the coal that it seized as would have been paid by foreign governments, corporations or others who were in keen competition at tide for coal at the time.

After hearing all of the witnesses and the argument of counsel Judge Peck took the case under advisement.

Suggests That Premium and Penalty Clauses In Contracts Be Limited to Essentials

IF the purchaser of coal wishes to buy on a premium and penalty basis, the same should be confined to a few essential items, such as the ash, heat value and fusing point of ash, in the opinion of H. L. Ogden, of Boston, Mass., representative of the National Association of Purchasing Agents on the committee on coal of the American Society for Testing Materials.

As told in *Coal Age* of Jan. 26, the sub-committee has rejected a contract form providing for the purchase of coal based on analysis. Its recommendations are: "That every plant cannot buy under the same specification and to determine what coals will work to the best advantage under your own peculiar conditions the different coals available in the territory where the plant is located be given a boiler test to determine which are best adapted to your use.

"When these coals have been determined, analyze them and draw up a contract on the basis of this analysis, naming the mine or mines from which coal is to be shipped.

"If a premium and penalty clause is included in the contract it should be based on the ash content of the coal, and the amount of the premium and penalty should be determined in each individual case on the actual cost of coal delivered and the expense of handling the excess ash at the plant."

In addition to the suggestions relating to the premium and penalty basis Mr. Ogden's report says that the amount of penalty and premium should be based on the cost to the purchaser of using the poorer quality of coal and that the premium to the operator should be based on the saving from use of the better quality. This, he believes, would insure uniform preparation of coal by the shipper.

Mr. Ogden believes that this is the only manner in which a satisfactory contract of this nature could be made and that the purchaser and the shipper would have to agree on the premium and penalty in each individual case. He also believes a rider clause might be attached to the standard coal contract of the association to meet the individual case.

The suggested rider provides for a maximum and minimum percentage of volatile, fixed carbon, ash, sulphur, moisture, thermal units and fusing temperature of ash. Succeeding paragraphs provide for the penalties, which are to be agreed upon, in case the coal does not come up to the analysis agreed upon, and it also provides that should the coal delivered fail to analyze equal to analysis specified or should the shipper fail to ship from the mine or mines specified, without the written consent of the buyer, the latter may cancel the contract should he so elect.

The following resolution was unanimously adopted by the committee:

It is the sense of the committee that when parties can agree in sampling and analyses, quality should be specified, based on analysis of samples taken from previous shipments. Specifications should state the mine or mines from which coal is to be shipped. The producer should, barring providential clauses, bind himself to take and pay for the coal if it is shipped as per contract with regard to quality and quantity. Any bonus and penalty should be so arranged that the user of the coal is indemnified for loss due to the quality being below specification and the operator is compensated for any gain which the user makes due to the coal being better than specifications.

Mr. Ogden's report is now before the National Fuel Council of the National Association of Purchasing Agents for consideration.

West Virginia Operators Meet in New York

ABOUT FIFTY members of the West Virginia Coal Association met early last week in the Waldorf-Astoria and discussed the threatened coal strike. The meeting adjourned on Feb. 8 but the Smokeless Coal Operators Association of West Virginia continued the meeting Feb. 9. L. G. Bradley, president of the larger association, said that "the unorganized fields produced in the 1919 strike about 30 per cent of the country's maximum tonnage. The country is now consuming about 80 per cent of the normal output, the unorganized fields shipping over half of that tonnage."

In the New River field, according to Mr. Bradley, 80 out of 115 companies are working on a non-union basis and in the Kanawha field 23 out of 165. The smokeless operators, under the chairmanship of E. E. White, concluded their sessions with a lunch at the Waldorf-Astoria at which R. Bryan, R. D. Hall, Senator Baumgartner, A. J. King, E. J. McQuail and J. J. Tierney made short addresses.

Explosives May Not Be Used at Cassidy

THE Department of Mines, Victoria, B. C., recently prohibited the use of explosives in the Cassidy mine of the Granby Consolidated Mining, Smelting & Power Co., the reason given being that it constituted a menace to the miners. The order followed reports of blowouts of methane and coal dust, a number of these occurrences taking place at intervals over a period of some months. In the opinion of the men affected the prohibition is unduly severe and objection is taken chiefly because it makes the work of the miner harder and, for those working on contract, less remunerative. William Sloan, Minister of Mines, has promised to consider the matter and in the meantime has forwarded a sample of coal from the mine in question to the U. S. Bureau of Mines, Washington, D. C., in order that tests may be made to ascertain the explosive range of the coal dust.

Scotts Run to Lower Wages 30 Per Cent

ON APRIL 1 the wages of mine workers in the Scotts Run field of Monongalia County, West Virginia, will be reduced 30 per cent, the Monongahela Coal Association at a meeting terminated on Feb. 4 having decided to announce that wage cut. The conferees also announced that the check-off would be eliminated. The members of the association operate 65 mines along the Monongahela and Morgantown & Wheeling railroads in West Virginia.

In announcing the reduction the association issued a statement in the course of which it was said that "The leaders of the mine workers have apparently shut their eyes to the wage adjustments that have been made in other industries. They have refused to recognize these wage changes and are unwilling to bear their share of the burden of deflation."

Hoover Queries Form Effective Trade-Association Code

Eleven Questions on Lawful Activities Receive Affirmative Answer by Attorney General—Collection of Data on Trade and Economic Conditions, If Revealed to General Public, Declared Harmless

QUESTIONS arising out of the activities of trade associations are of such complex legal character that the Department of Commerce and the Department of Justice have given out for publication the entire correspondence on the subject, to which the departments have given several months of study and investigation.

It is likely that a series of conferences between Herbert Hoover, Secretary of Commerce, and representatives of the principal open-price associations and trade organizations of the country will be begun soon for the purpose of arranging for the compilation and publication of trade statistics in accordance with the recent decision of the Supreme Court in the Hardwood case and the correspondence mentioned.

Mr. Hoover's Letter Covers All Angles

The following letter from Mr. Hoover to Harry M. Daugherty, Attorney-General, under date of Feb. 3, 1922, requires no explaining:

"The situation regarding the activities of legitimate trade associations is more disturbing now than at any time since we first discussed the matter, and since Mr. Lamb was advised by Colonel Goff and Mr. Fowler that it was your desire that I present an informal, inter-departmental inquiry regarding the present status of the law relating to legitimate trade associations and the extent that they may engage in legitimate co-operative activities, I have made a further survey of the matter, and the questions hereinafter presented seem to me to be vital to trade associations based on present information secured through recent investigation.

"It may not be out of place to call your attention to the organic act which created the Department of Commerce, which imposed upon the department the duty 'to foster, promote, and develop the foreign and domestic commerce, the mining, manufacturing, shipping, and fishery industries, and the transportation facilities of the United States.' In obeying the commands of the statute, it seemed to me that the department should employ all available legal means to get into the closest possible touch with industry in all its forms and secure the best information possible regarding the needs and necessities of trade and commerce.

"If the department has to help, aid, and assist industry, it must, of course, be conversant with the facts and conditions influencing the carrying on of trade. The existence of a large number of trade associations being well known prompted me to make inquiry regarding their forms of organization and the functions they were performing to ascertain whether or not they could be utilized as a means for securing trade information that would properly aid the department in performing its duties. My inquiry into the affairs of trade associations was not with the idea of creating a new scheme for carrying on business, but solely for the purpose of ascertaining whether or not they could properly be utilized in furnishing information that would not only be helpful to the department and to the commercial world but to the public generally, always keeping in mind that whatever activities were carried on by such associations, they should of necessity be within the terms of existing law.

"In the course of my inquiry I discovered that certain trade associations were involved in litigation which questioned the legality of their performances, and by reason of the litigation, there was much doubt and confusion regarding the legal limits within which trade associations could properly operate. This situation seemed to call for conferences with your department, which you have graciously afforded, and although no definite determination has heretofore been reached regarding the policy to be pursued, I realize the difficulties that confront you in attempting to reach a proper conclusion, and while a public announcement from you would have been most helpful to all, I most heartily acquiesce in your suggestion that the matter be presented as an informal, interdepartmental inquiry for my guidance in performing the duties imposed upon me by the organic act creating this department.

"So much has been said in the various conferences, coupled with lapse of time, in order to obviate excusable failures in memory as to the matters that have heretofore been discussed and to make clear the position and views of this department, I desire to offer some preliminary observations regarding trade associations before asking the specific questions heretofore set forth in various informal memoranda and upon which I desire the informal expression of your views.

"Commercial progress in industry has always been measured by the advance in knowledge of those engaged in industry. It is impossible for men to acquire or secure all possible knowledge at one time. Its acquisition is a growth resulting from continuous, intelligent inquiry. The knowledge of an industry that is necessary and essential to its success must embrace all facts and circumstances that will in any way influence that industry. These facts and circumstances must include economic conditions as well as scientific facts to the extent that science is called into play in its operation and all commercial conditions that make for efficient production, merchandising and distribution. No one will dispute the foregoing statements; they are fundamental and necessary to the life of trade and commerce.

Difficult to Determine Means and Methods

"The difficulty seems to lie in the determination of the means and methods that may be adopted to secure this necessary information. Little, if any, trouble is experienced in securing the admission that an individual may secure knowledge of these facts by any means that would not constitute an individual crime, and that he may use the information in such manner as his best judgment may tell him will bring him the greatest benefit.

"But when two individuals engaged in the same line of industry undertake to provide a means for securing facts necessary and essential to the economic and efficient conduct of their respective organizations, this form of endeavor seems to at once assume an aspect of difficulty that, in my judgment, is in no way justified by a proper consideration of the underlying necessities therefor.

"The individual sets up some form of instrumentality to secure the information without which, in the management of his business, he would be groping in the dark. His competitor across the street does the same thing, and each, securing his information in his own way, uses it as he sees fit, and the action of either one has not offended the majesty of the law. Yet, if the two seek to joint the instrumentality each has used for information purposes and the same information is received through one instrumentality and the information given to each and it is used in the same way that it was before, it is suggested that the collective activity in the use of the consolidated instrumentality should not be permitted because of the greater ease and facility thereby afforded for the two individuals to make improper use of the information so acquired. In other words, the objection does not go to the instrumentality, but to the abuse of the information that may be secured through the collective means.

"The principle is the same whether two or two hundred join together in securing the information.

"No form of legislation has ever yet been devised, nor has man, with all of his genius for invention, ever been able to devise a rule or regulation that would prevent men from committing crimes if they are so minded. The best that can be done is to forbid the doing of certain acts or to command the doing of others, prescribing proper punishments in the case of the commission on the one hand and the omission

on the other; and when legislation takes that form, rules and regulations and administrative constructions which have for their objective the making of the prohibited thing more difficult will always include within their terms the law-abiding citizen as well as the prospective criminal.

"We have had criminals since the beginning of time, and human nature cannot be changed by legislation. The criminally inclined represent a small minority, and it may be said in a general way that, excepting offenses against persons and property, most of the criminal statutes regulating trade and commerce and forbidding acts that seem against sound public policy have been made necessary for the control of the minority. None of these statutes, however, has undertaken to prevent the doing of a thing that would result in benefit to the public, but the restriction has been against the doing of the thing in an unlawful way.

"These statutes have not condemned lawful institutions or instrumentalities for the carrying on of commerce merely because someone might possibly abuse their use. The laws have condemned the abuse, and punishments have been prescribed for those who may be found guilty of the abuse. Therefore, the fact that the minority may be known to violate given laws does not establish a principle that the primary means lawful in itself, which they have adopted for the purpose of performing the unlawful acts, should be entirely abolished and its use forbidden by law-abiding citizens. Each unlawful use of the means is merely an individual case of the violation of a law.

"Trade associations have been in existence for many years. The great majority are legitimate, both in form of organization and in activity. The minority, while lawfully organized under articles expressing lawful purposes, may engage in activities that are evidence of purpose contrary to and outside of the declared purposes in the articles of organization.

"Again, a trade association may have lawful form of organization and the activities of its officers may be clearly within the purposes declared in the association charter, and yet members of the organization may, by unlawful confederation, use the information lawfully secured for unlaw-

CODE OF PRACTICE GOVERNING TRADE ASSOCIATIONS

Secretary Hoover's Eleven Questions, Which Elicited an Affirmative Reply from Attorney-General Daugherty

(1) May a trade association provide for its members a standard or uniform system of cost accounting and recommend its use, provided that the costs so arrived at by the uniform method are not furnished by the members to each other or by the members for the association and by the latter to the individual members?

(2) May a trade association advocate and provide for uniformity in the use of trade phrases and trade names by its respective members for the purpose of ending confusion in trade expressions and for harmony of construction as to the meaning of trade phrases, names, and terms?

(3) May a trade association, in co-operation with its members, advocate and provide for the standardization of quality and grades of product of such members, to the end that the buying public may know what it is to receive when a particular grade or quality is specified; and may such association, after standardizing quality and grade, provide standard form of contract for the purpose of correctly designating the standards of quality and grades of product; and may it standardize technical and scientific terms, its processes in production, and its machinery; and may the association co-operate with its members in determining means for the elimination of wasteful processes in production and distribution and for the raising of ethical standards in trade for the prevention of dishonest practices?

(4) May a trade association collect credit information as to the financial responsibility, business reputation and standing of those using the products of the industry; and may the association furnish such information to individual members upon request therefor, provided such information is not used by the association or the members for the purpose of unlawfully establishing so-called "blacklists"?

(5) May a trade association arrange for the handling of the insurance of its members, including fire, industrial, indemnity or group insurance? In other words, can the members of an industry, through the agency of a trade association, arrange for or place all of the insurance of the members?

(6) May a trade association, in co-operation with its members, engage in co-operative advertising for the promotion of trade of the members of that association engaged in the particular industry; and may the association engage in such form of promotion by furnishing trade labels, designs and trade marks for the use of its individual members?

(7) May a trade association, for and in behalf of its members, engage in the promotion of welfare work in the plants or organizations of its members, which welfare work includes sick benefits and unemployment insurance for employees, uniform arrangements for apprenticeship in trade education, the prevention of accidents and the establishment of an employment department or bureau for co-operation with employees?

(8) May a trade association, in co-operation with its members and acting for and in behalf of its members, handle all legislative questions that may affect the particular industry, regarding factories, trades, tariff, taxes, transportation, employers' liability and workmen's compensation, as well as the handling of rate litigation and railroad transportation questions?

(9) May a trade association, in co-operation with its members and acting for and in their behalf, undertake the promotion of closer relations between the particular industry and the federal and the state departments of government which may have administration of laws affecting the particular industry in any form?

(10) A. May a trade association collect statistics from each member showing his volume of production, his capacity to produce, the wages paid, the consumption of his product in domestic or foreign trade, and his distribution thereof, specifying the volume of distribution by districts, together with his stock, wholesale or retail?

B. And may such trade association, on receipt of the individual reports of each member, compile the information in each report into a consolidated statement which shows the total volume of production of the membership, its capacity to produce by districts of production, which, in some instances, include a state or less area, the wages by districts of production, the consumption in foreign or domestic trade by districts, the volume of distribution by districts, and the stocks on hand, wholesale and retail, by districts?

C. And if, after compiling the information as aforesaid, the information received from the members as well as the combined information is not given by the association to any other person, may it then file the combined statement with the Secretary of Commerce for distribution by him to the members of the association through the public press or otherwise and to the public generally and to all persons who may be in any way interested in the product of the industry, it being understood that the individual reports for the members should cover either weekly, monthly, quarterly or longer periods, as may be deemed desirable by the members, and, when a period is adopted, the report for each member shall cover that period, and the combined report shall be for that period?

(11) A. May a trade association, at the time it collects the production and distribution statistics above outlined, at the same time have its members report the prices they have received for the products they have sold during the period taken, specifying the volume of each grade, brand, size, style or quality, as the case may be, and the price received for the volume so sold in each of the respective districts where the product is sold?

B. And may the association, without making known to any person the individual price reports of any member, consolidate all of the reports into one, and show the average price received for the total volume of each grade, brand, size, style or quality, as the case may be, distributed in each district covered by the distribution statistics for the period covered by each individual report?

C. And may the association, after making such compilation, send the compiled report as to average price, as aforesaid, to the Secretary of Commerce, to be by him distributed to the public and to any or all persons who may be interested in the particular industry making the report?

In order to avoid repeating this question in connection with each one of the activities outlined in the eleven preceding questions, may trade associations engage in any or all of the activities named without violating the law, provided the organization and the activity engaged in are not for the purpose of hiding or concealing some agreement, contract, etc., to actually restrain trade of otherwise violate the anti-trust laws?

ful purposes. It may, therefore, truthfully be said that the line dividing the good association and the bad, the proper activity from the improper one, and the lawful activities of the officers of an association from the unlawful acts of the membership, cannot be determined in every instance with singular ease. It is my belief, however, that it is more easy to determine the forms of organizations and activities that are generally recognized as good than to determine in advance those that may be bad, because in the latter instance the peculiar facts relating to each association the subject of inquiry may determine whether the organization or its members are operating in violation of law.

"It is with much earnestness that I claim there is propriety, generally speaking, in trade associations. Their lawful field of endeavor is large, and their activities work for promotion and advancement of the public welfare and for progressive economic organization. In making this statement I am not unmindful of the fact that the impression exists with a small minority that individual prohibited acts may be accomplished by organization under the disguise of a trade association. However, to make my position clear regarding the trade associations the existence of which I advocate, I desire to say that I have always taken the view that no body of men could combine in the form of a trade organization and do any act or thing forbidden by law if they were undertaken by them outside of a trade organization.

"The character of trade organization the existence of which should be preserved is one that carries lawful purposes only in its articles of association; its activities must be in harmony with its declared purposes. The articles of association, with their lawful, declared purposes, must not be used as a mask to hide unlawful purposes. In other words, the organization cannot be used to conceal or disguise any contract, combination, conspiracy, agreement or understanding, secret or otherwise, on the part of the officers of the organization or on the part of the membership or any part thereof to engage in activities in restraint of trade or otherwise in violation of the anti-trust laws.

Much Data Restricted to Association Members

"There has been much information collected by legitimate trade associations in which the general public has no interest whatsoever, yet information of this class has always been freely offered to the daily and the trade press, as well as to any governmental agency that might desire the information as a matter of statistical record. On the other hand, certain statistical data are collected by trade organizations that would be of vast value to the public generally if published in practical, available form.

"Many of the trade associations securing and disseminating the statistical data mentioned have restricted the same to its membership, while others have undertaken to give the same to the public through the daily and the trade press concurrently with its members. The trade associations of the latter class are in the minority.

"Information lawfully secured regarding trade and economic conditions made public for the information of everyone cannot be harmful. Information secured solely for the benefit of members and of a character that puts the membership, by reason of the information, in a position of advantage as compared with the public without such information cannot be sanctioned by sound public policy. The act of securing the information and the use of it by the members of a particular organization may be perfectly lawful in itself, but it is my belief that good morals and a sense of fair dealing require the giving of the information secured in this collective manner to the public generally, to the end that all persons engaged in commercial transactions involving the information in question will be on an even footing.

"The activities of trade associations that have received the greatest criticism involve the collection of statistics relating to volume of production, capacity to produce by districts of production, wages, consumption of products in domestic and foreign trade, distribution thereof including volume of distribution by districts, together with figures as to stocks on hand, wholesale and retail, by districts, coupled with information as to price, either in the form of individual reports of each member distributed to every other member or the individual prices reported to the association and by the latter compiled and averaged by districts for certain specified periods.

"If information regarding production, capacity and distribution by districts, with average prices for grades, brands, sizes, styles or qualities sold in the respective districts for specified periods of time could be given to the public at the same time that such information is available to the members of an association, in my judgment, great public good would result. With this information available, everyone dealing in the products of a given industry, whether buyer or seller, would have the same information regarding conditions and, in dealing with one another, would have knowledge of the same facts upon which to form their judgments as to the proper course to pursue.

"A majority of the associations collecting data of the nature indicated have distributed same only to members of the association, while others have undertaken to give the information to the public through the daily and trade papers. Publication of the information by these associations in the daily press has not been general, and its availability to the public has been largely through the medium of trade papers, and through the daily press to the extent that the latter may have been utilized. When published through trade papers this information should be released to members only after such publication

"It should be borne in mind that the criticism aimed at this form of activity has not involved the instrumentality for securing it or the subject matter of the information, but has been directed to the use or possible use that might be made of the information and the fact that no means existed for distributing the information to the public at the same time that it was received by the members of the association. These observations likewise apply to the criticisms directed to the furnishing of average prices of given commodities according to grade, size, brand, or quality by districts for specified periods of time, based on past and closed transactions.

"With these observations, which have been extended at greater length than I intended, I desire the informal expression of your views as to the following activities on the part of trade associations and their members wherein neither the form of the association nor the activity, which appear perfectly fair and lawful on the surface, is used to hide or conceal some contract, combination, conspiracy, agreement or understanding, secret or otherwise, on the part of the association, the membership, or any part thereof to actually restrain trade or otherwise violate the Sherman Act. [Then follow the eleven questions enclosed in a border on page 298.]

"As stated in the beginning, I do not ask you to express your views in a formal opinion, but it is my hope that you may see your way clear to give me the advice that will enable me to adopt the proper administrative action in undertaking the duties imposed upon the Secretary of Commerce by the organic art creating the department. It is unnecessary for me to say that the general, unsettled condition regarding the proper provinces of trade associations justifies as early a reply to these inquiries as your other numerous official duties will permit."

Attorney-General Daugherty's Opinion

Attorney-General Daugherty's reply, under date of Feb. 8, was as follows:

"Your communication of the 3rd instant relating to the practices in which trade associations may lawfully engage was received. I recognize the force of your able discussion of the subject, and after careful consideration of the several activities which you suggest can be exercised lawfully, I beg to say:

"With reference to the first paragraph, there is no apparent objection to a standard system of cost accounting, but I think associations should be warned to guard against uniform cost as to any item of expense. For illustration, a strong effort has been made by some lumber associations to take as a basis for estimating costs of production a uniform charge for stumpage. Of course the cost of the timber in the tree to the different manufacturers who own their timber in the woods greatly varies; and as to each it should be

charged at its actual cost. It is as clearly a violation of the law to agree upon the cost of an item that constitutes a substantial part of the total cost price when its cost actually varies, as to agree upon the sales price, because the sales price is substantially affected by such agreement. It has been ascertained that the members of one association go so far as to fix a uniform cost price, leaving to each member to determine what per cent profit he will add, thus eliminating entirely competition in so far as affected by the cost of production.

"Furthermore, I have serious doubts about the advisability of the latter part of the sixth paragraph. I can see no objection to co-operative advertising designed to extend the markets of the particular article produced or handled by the members of an association, but when the several producers or dealers use uniform trade labels, designs and trade marks it seems to me the inevitable result would be a uniformity of price. Where two competing articles are advertised in precisely the same way and bear exactly the same label or trade mark, it certainly would be difficult for one to be sold at a higher price than the other, although its quality may be superior. In a way this is illustrated in the cement industry. There a standard of quality has been adopted. That is, it is necessary for all cement to comply with a certain standard, but in practice no manufacturer undertakes to make, or at least no one advertises that he does make, a grade of cement superior to that standard. The result is that there is no competition in the sale of cement so far as quality is concerned. It seems to me therefore that it would be well to eliminate the latter clause in paragraph six, to wit, 'and may the association engage in such form of promotion by furnishing trade labels, designs and trade marks for the use of its individual members?'

"I can now see nothing illegal in the exercise of the other activities mentioned, *provided always* that whatever is done is not used as a scheme or device to curtail production or enhance prices, and does not have the effect of suppressing competition. It is impossible to determine in advance just what the effect of a plan when put into actual operation may be. This is especially true with reference to trade associations whose members are vitally interested in advancing or, as they term it, stabilizing prices, and who through the medium of the associations are brought into personal contact with each other. Therefore the expression of the view that the things enumerated by you, with the exceptions stated, may be done lawfully is only tentative; and if in the actual practice of any of them it shall develop that competition is suppressed or prices are materially enhanced, this department must treat such a practice as it treats any other one which is violative of the Anti-Trust Act."

Mr. Hoover Clears Up a Misconception

Under date of Feb. 9 Secretary Hoover wrote as follows to Mr. Daugherty:

"Your observations regarding the last clause in question (6) in my letter are wholly sound, based on the language of that clause. It was not, however, my idea that each constituent member of a trade association would use a community trade mark on his product, i.e., the same trade mark that was used by every other member of the association, and, therefore, the last clause in that question was unhappily worded. The question really relates to trade promotion through co-operative advertising, in which certain trade slogans are used, such as, 'Made in Grand Rapids,' which was adopted by the furniture manufacturers at that furniture center.

"Generally, activities covered in question (6) are conducted by a trade association in a given local community. An organization at Chicago advertises for its entire membership, which includes every line of commercial endeavor in Chicago, that the city is the great central market. It is co-operative advertising of this class that tends to promote trade extension in given lines or collected lines of industry. Certain of the trade associations, however, do devise trade marks, not for use by all members, but for individual members. It is a well-known fact that when some manufacturer or producer is fortunate enough to select a trade mark that appeals to the public, it becomes a great aid in selling his commodity and, as a result, it is well advertised until it becomes a household word. Other producers or manufacturers of the same kind of an article, in order to take advantage of this situation, will devise a trade name or trade mark as near to that of the successful competitor as he thinks he can go and still escape suit under the trade mark or unfair competition laws.

"The activities of a trade association regarding trade marks to which I referred in my letter of the third relate to the straightening out of instances of unfair competition or infringement as between the members by undertaking to design trade marks for the individual members of the association making the same product that would absolutely prevent confusion on the part of the public as to the producer or manufacturer of the given article and, at the same time, remove all claim of infringement or unfair competition. In other words, the trade-mark activity referred to was that of making the trade marks of each individual member distinctive instead of common. You may, therefore, consider the part of my question (6) referred to in your letter as eliminated from the question, and that the question was really intended to cover the matters stated herein. With this explanation, I feel sure you will agree with me that our views on the matters presented are in complete accord."

Southern Appalachian Operators Veto Union

SOUTHERN Appalachian coal operators are opposed to the closed shop and the check-off. Prior to 1917 this region was non-union in every respect, but for several years has had so-called open-shop working agreements with the United Mine Workers. A resolution proposed and adopted at the annual meeting of the Southern Appalachian Coal Operators' Association, held in Knoxville on Feb. 10, 1922, amends the constitution of that organization as follows:

"That this association have nothing whatever to do with labor matters, except to resist with all its influence and power, both directly and indirectly, any movement to force the mines of this section into a 'Closed Shop' basis, or to adopt the so-called 'Check-off.'"

This is held to mean that the operators will hereafter deal directly with their labor, and that there will be no district agreement.

The meeting at Knoxville, the twelfth annual meeting of its kind for this association, was well attended, more than 100 operators being present. L. C. Gunter was re-elected president. J. E. McCoy, the able and well-known secretary, continues in that office.

Addresses were made at the meeting by Mr. Gunter, by C. D. Boyd, traffic manager; Judge H. B. Lindsay, general counsel for the association, and by Mr. Patterson.

Consolidation Acquires Carter Coal Co.; Now Among Smokeless Shippers

ACQUISITION by the Consolidation Coal Co. of the Carter Coal Co., having four mines in the smokeless field of southern West Virginia shipping navy standard coal, two mines in Virginia south of the Pocahontas region and three mines in Knox County, Kentucky, puts the Consolidation in the list of smokeless shippers and sets at rest several years' speculation in the trade as to when and where the Consolidation would eventually acquire an interest in this field.

The Carter Coal Co. interests, including 16,000 acres of undeveloped high-grade smokeless coal land on Dry Fork in the Pocahontas region, are now developed by four mines, the Olga shaft and Nora No. 8, Thelma No. 6, and Caretta No. 5 drifts. In Virginia the company has the Empire and Seaboard drift mines in Tazewell County, on the Norfolk & Western, with 10,000 acres of coal land. The Kentucky mines, on a 12,000-acre tract in Knox and Bell counties, are known as the Warren, Trosper and Anchor drift.

Except a portion of the Kentucky property all coal lands are owned in fee and the Pocahontas holding is reputed to be the largest single tract so held in that field. The combined annual output of all the Carter Coal Co.'s mines is about 1,000,000 net tons, with a capacity of 1,500,000 tons. The Consolidation announces that the plant will at once be greatly expanded, some reports stating that the aim is to reach 5,000,000 tons a year.

Mine Workers Do Not Desire a Strike, Lewis Says

Scale Committee Insists That Present Basic Wage Sehedules Be Maintained—Recommends Adjustments of Inequitable Differentials and Unfair Conditions—Advises Ratification of Anthracite Demands

BY E. W. DAVISON
Special Dispatch to *Coal Age*

AT 10 a. m. Feb. 14 the twenty-eighth annual convention of the United Mine Workers began its sessions in Indianapolis. The report of the scale committee opposed any reduction in mining prices, insisting "that the present basic wage schedules be maintained." "We recommend that inequitable differentials within and between districts, unfair working conditions and internal differences, wherever existing, be adjusted on a fair and satisfactory basis," the report stated, "and the joint conferences in the respective districts be empowered to make such adjustments. The present eight-hour day is merely theoretical, the mine workers being compelled to spend greatly in excess of eight hours in the mines. We hold that eight hours out of twenty-four is the maximum amount of time any mine worker should spend underground. We therefore recommend that all new agreements be based upon the eight-hour day underground."

The committee also took a stand for time and a half for overtime, doubletime for Sundays and holidays, weekly pay days, elimination of automatic penalty clauses in wage agreements, that the convention go on record for ratification of anthracite wage demands formulated in Shamokin and that the next wage scale cover two years.

The scale committee also recommended that International officers demand that the operators in the Central Competitive Field live up to the agreement of March 31, 1920, and confer on a new wage agreement, that John L. Lewis and the presidents of Districts 1, 7 and 9, in the anthracite region, try to arrange a joint conference with anthracite operators for a new agreement there.

SUSPENSION ADVISED IF AGREEMENT IS NOT MADE

"In case no agreement is reached in anthracite and bituminous fields by April 1 we declare in favor of a general suspension, subject to a referendum vote of the membership of the United Mine Workers previous to March 31."

Appointment of a committee is advised, to be composed of the scale committee of the Central field, three men from each outlying district, the international executive board and officers, to "take such action for the protection of our best interests as circumstances may require and to advise the membership upon unexpected developments which may arise and which now cannot be foreseen." It was recommended also that when an agreement may be made in the Central Competitive Field, the outlying districts be authorized to enter into joint negotiations for wage agreements as in the past, such agreements to run concurrently with the basic agreement in the Central Competitive Field.

"Any wage scale must be submitted to a referendum vote of the membership affected for approval." The convention deferred action on this report until Wednesday, when printed copies were to be given all delegates.

All action on the credentials committee report was postponed until Wednesday, though the Illinois vice president, Harry Fishwick, tried to get the floor to start a contest for the seating of Howat.

Indications early Tuesday morning, Feb. 14, were that war over Alexander Howat and the Kansas mine situation would flare forth some time during the day. The delegates reconvened at 10 a.m. to finish the work begun at last October's session. As president John L. Lewis delivered his address counselling unity at any cost and the full exercise of sound, sober judgment Howat and his men from Kansas sat in the gallery uneasily waiting for Frank Farrington, president of the Illinois district, to see his chance to begin the fight to seat them in place of "Provisional President" Dan Peck of the Kansas district and the contingent of 59 administration men.

It seemed as if the Lewis and Farrington factions were practically agreed upon the report of the scale committee, although the report was still shrouded in secrecy Tuesday morning. Members of the committee, however, gave evidence of believing that the organization should take a stand for a 15- or 20-per cent increase in wages and feel lucky if it could maintain the present level, but that the check-off must be saved. Mr. Farrington, a member of the committee, said no five-day weeks, six-hour days, 40-per cent increases in pay or any other extravagant demands were to be recommended.

In his final statement to the public before the convention opened, President Lewis said: "The United Mine Workers do not desire a strike. We propose to do everything possible in a proper way to prevent such an occurrence. I feel sure when the convention has finished its work the public will realize that fact." This was taken to presage a moderate stand on the part of the union organization.

He professed great satisfaction at the action of the railroad brotherhoods in accepting his invitation to talk over a miner-railroader alliance next week.

The Farrington faction has said little except to declare war on Lewis for "Sticking a knife in Howat's back."

"We are going to make a mighty try to reinstate Howat as president in District 14, and have those revoked charters returned," Mr. Farrington said.

"If you fail, how about holding a rump Howat convention?" a questioner asked.

"I don't think anybody has any thought of that," said he. But Howat was not so positive. He merely did not want to talk about it. The administration feels that Farrington cannot muster as much strength as he displayed for Howat last autumn. Farrington declares he has more. It was expected that before night he would have a chance to marshal it, for the credentials committee had denied Howat and his men the floor and the battle was scheduled to start early.

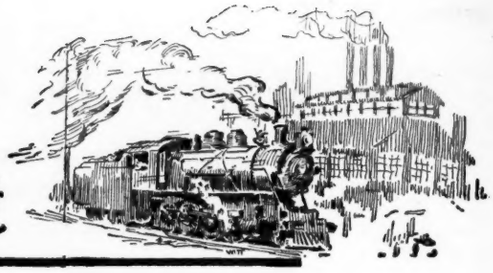
THE NATIONAL COAL ASSOCIATION, through its representatives, at the meeting of the National Council of the Chember of Commerce of the United States opposed the adoption of the resolution favoring the creation of a commissioner general of transportation. J. D. A. Morrow and W. B. Reed represented the National Coal Association at the meeting.

J. D. A. MORROW, vice-president of the National Coal Association, addressed the annual meeting of the Hazard Coal Operators Exchange, at Lexington, Ky., on Feb. 10. Before returning to Washington he expects to visit Columbus, Cleveland and Pittsburgh.

Mine and Railroad Workers to Confer

JOHN L. LEWIS, president of the United Mine Workers of America, announced Feb. 11 that the executives of all the railroad unions with the exception of one of the largest had consented to be parties to a conference with the executives of the mine workers to be held Feb. 21 in Chicago. He is hopeful that the one organization still holding out yet may be induced to be represented by its executive officers. A leader of one of the great railroad brotherhoods has recently pointed out that the rules of the "Big Four" forbid sympathetic strikes.

Production and the Market



Weekly Review

THAT "every cloud has a silver lining" was demonstrated last week in the coal industry. The menacing strike cloud has enlivened buyers' interest and orders for storage coals are increasing daily. While much of the heavier production is going to reserve piles, barometer reports from industrial centers show that current consumption is also heavier.

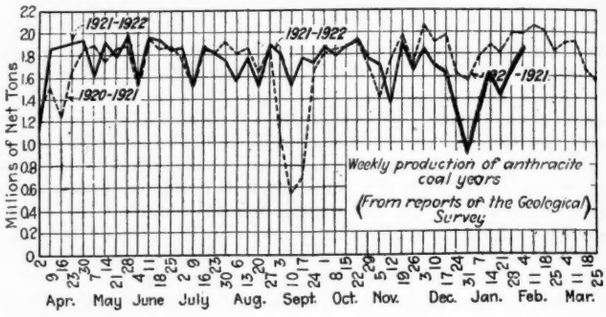
Coal prices have risen, or, rather, the low and unprofitable distress quotations have about disappeared. *Coal Age* Index of spot bituminous coal prices stands at 183 as of Feb. 13, as compared with 182 for the week of Feb. 6. A price boom is unlikely, as too many mines are standing idle ready to fill in the gap between supply and demand when the latter has picked up sufficiently to warrant a resumption of operations.

Strike Threat a Reversal of Usual Order

The underlying psychology of the present threatened strike is vastly different from any that has occurred in the mine regions in the past quarter of a century. On previous occasions the walk-out was the result of demands for higher wages, which usually were won and which spelled higher coal prices. Conditions are reversed today. A strike, if it comes, will flow from the demand for lower wages, which will result in reduced prices for coal. In other words, the outcome of the strike is likely to be cheaper coal, whereas conflicts in recent years have been followed by higher-priced fuel. Users are taking this aspect of the situation into consideration and argue that there is little inducement to stock up now greatly in excess of needs. The only point of perplexity is the probable length of the shutdown. If output should be halted for a long period, users without sufficient stocks to carry them over would suffer, and this angle is being given special study.

Rail union chiefs have agreed to discuss the proposed alliance with the miners to fight against wage reductions. The meeting is set for Feb. 21, at Chicago, following closely the miners' convention at Indianapolis. Confronted with this disturbing possibility, the industrial buyer has felt the necessity of playing safe in the event that a coalition of mine and railroad labor closes the avenues of non-union coal supply.

Retail anthracite business has been stimulated by more seasonable weather. Householders are still keeping orders at the minimum, but as this policy has been followed throughout the season, an increase, caused by


1921-1922
1921-1922
1920-1921
1921
Millions of Net Tons
Weekly production of anthracite coal years
(From reports of the Geological Survey)
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

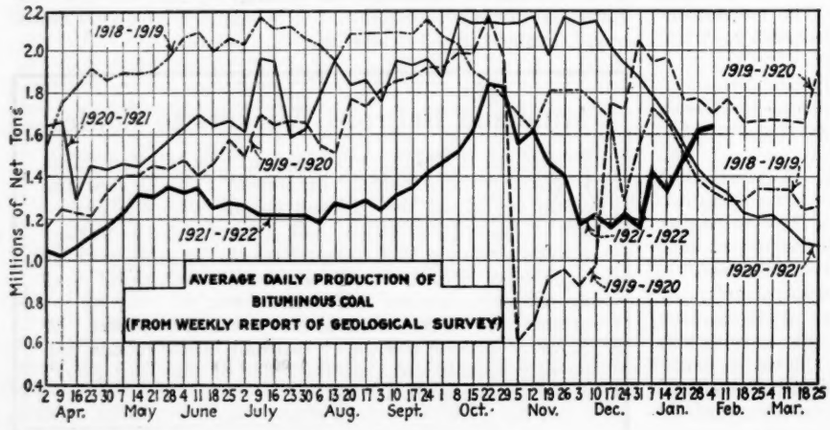
weather conditions, has been immediately apparent. Retail stocks continue to dwindle as replacement orders to the mines are being withheld with a view to going into April with stocks at a low point.

Independents at best are obtaining only company schedules for domestic coals, while pea, which is very sluggish, is being quietly shaded by some of the larger producers. Continued scarcity of steam sizes has strengthened independent quotations.

BITUMINOUS

Production continues to increase. The total output during the first week of February was 9,708,000 net tons, an increase of 88,000 tons when compared with the output for the previous week. At the current rate of production and consumption reserve stocks are steadily growing. That this rate is increasing is indicated by reports of loadings for the first two days of last week, when 2,000 cars more were loaded than in the corresponding days of the week preceding.

Coastwise receipts are heavier. This is attributed mainly, however, to the fact that bad weather had bunched New



Estimates of Production

(Net Tons)

BITUMINOUS COAL

	1921—1922	1920—1921
Week Ended:		
Jan. 21 (*b*)	8,782,000	9,184,000
Jan. 28 (*b*)	9,620,000	8,570,000
Feb. 4 (*a*)	9,708,000	8,132,000
Daily average	1,618,000	1,355,000
Coal year	350,439,000	466,581,000
Daily aver. coal yr.	1,350,000	1,790,000

ANTHRACITE

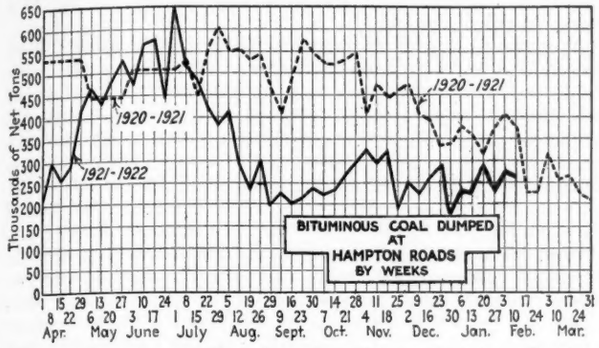
	1922	1921
Jan. 21	1,443,000	1,819,000
Jan. 28	1,607,000	1,999,000
Feb. 4 (*a*)	1,811,000	1,985,000

COKE

Jan. 28	113,000	248,000
Feb. 4 (*a*)	122,000	234,000
Calendar year	577,000	1,277,000

(*a*) Subject to revision. (*b*) Revised from last report

England cargoes at the Roads and bulked the movement into a relatively short period. Bunker tonnage shows a gain lately. Total dumpings at the Hampton Roads piers were 254,178 net tons during the week ended Feb. 9, as compared with 271,032 tons in the previous week. Accumula-


Thousands of Net Tons
1920-1921
1921-1922
BITUMINOUS COAL DUMPED AT HAMPTON ROADS BY WEEKS
Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.

tions are growing at the piers, but the market is reflecting a better tone throughout.

In the month of January there was dumped over Tidewater piers a total of 2,325,000 net tons. In comparison with December, this represented a decrease of 120,000 tons.

The quantity exported is placed at 141,000 net tons, equivalent to an annual rate of 1,690,000 tons. How complete is the depression in the export trade may be judged from the fact that in 1919 exports were 8,292,000 tons; in 1920, nearly 22,000,000, and in 1921, 9,633,000 tons.

TIDEWATER BITUMINOUS COAL SHIPMENTS FOR JANUARY, 1922
(In net tons)

Destination	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Total
Coastwise to New England	58,000	42,000	63,000	716,000	.....	879,000
Exports	1,000	14,000	25,000	87,000	14,000	141,000
Bunker	219,000	32,000	27,000	179,000	1,000	456,000
Inside capes.	.....	156,000	99,000	15,000	.....	270,000
Other tonnage	522,000	2,000	3,000	52,000	.....	579,000
Total.....	798,000	246,000	217,000	1,049,000	15,000	2,325,000

A sudden increase in all-rail coal shipments to New England was recorded during the week ended Feb. 4, when 3,531 cars were forwarded—721 cars in excess of the preceding week's movement. The New England market is taking more coal, most of it via Hampton Roads, although central Pennsylvania grades have been better taken at slight concessions. Marine freights have strengthened recently, due to better demand and poor transportation weather. A continuance of this strength will enlarge all-rail shipments in the more closely competitive New England territory.

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F. O. B. Mines

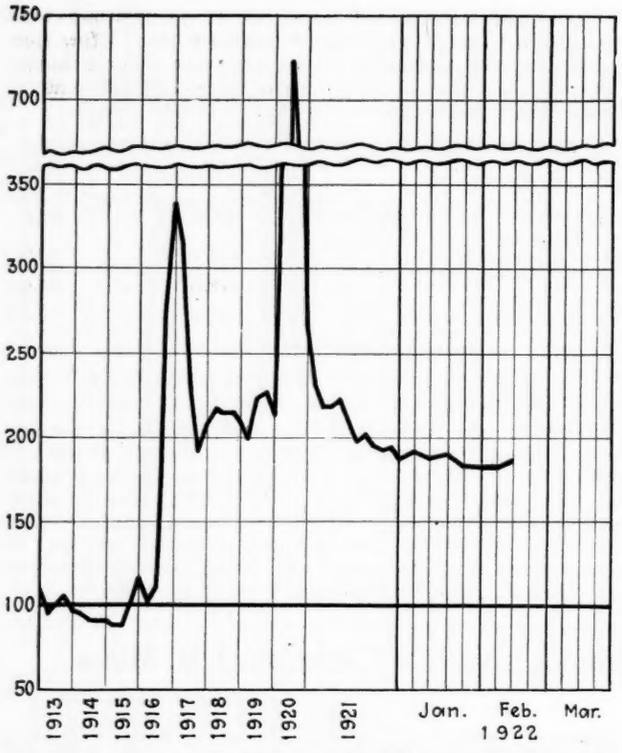
Low-Volatile, Eastern	Market Quoted	Jan. 16 1922	Jan. 30 1922	Feb. 6 1922	Feb. 13 1922†
Pocahontas lump	Columbus	$3.45	$3.30	$3.25	**$3.25@$3.40**
Pocahontas mine run	Columbus	2.15	2.15	2.15	*1.75@ 2.10*
Pocahontas screenings	Columbus	1.50	1.55	1.30	**1.25@ 1.50**
Pocahontas lump	Chicago	3.10	2.85	3.00	**2.75@ 3.50**
Pocahontas mine run	Chicago	2.50	2.15	2.00	**2.00@ 2.50**
Pocahontas lump	Cincinnati	3.00	3.15	3.15	3.00@ 3.25
Pocahontas mine run	Cincinnati	1.90	2.05	1.85	1.75@ 2.00
Pocahontas screenings	Cincinnati	1.30	1.40	1.20	*1.00@ 1.25*
*Smokeless mine run	Boston	4.80	4.70	4.70	**4.70@ 4.85**
Clearfield mine run	Boston	2.05	1.95	1.95	1.70@ 2.25
Cambria mine run	Boston	2.45	2.45	2.45	2.25@ 2.60
Somerset mine run	Boston	1.80	1.90	1.90	1.75@ 2.00
Pool 1 (Navy Standard)	New York	3.00	2.85	2.85	**2.75@ 3.25**
Pool 1 (Navy Standard)	Philadelphia	3.00	3.00	3.05	2.85@ 3.25
Pool 1 (Navy Standard)	Baltimore	2.30	2.70	2.55	**2.50@ 2.70**
Pool 9 (Super. Low Vol.)	New York	2.25	2.20	2.35	**2.35@ 2.50**
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	2.40	2.45	2.20@ 2.65
Pool 9 (Super. Low Vol.)	Baltimore	2.15	2.45	2.20	**2.15@ 2.40**
Pool 10 (H. Gr. Low Vol.)	New York	1.95	2.05	2.05	**1.90@ 2.25**
Pool 10 (H. Gr. Low Vol.)	Philadelphia	2.00	2.00	2.10	1.95@ 2.20
Pool 10 (H. Gr. Low Vol.)	Baltimore	1.90	2.05	2.00	**2.00@ 2.10**
Pool 11 (Low Vol.)	New York	1.70	1.65	1.75	1.65@ 1.85
Pool 11 (Low Vol.)	Philadelphia	1.70	1.70	1.75	1.65@ 1.85
Pool 11 (Low Vol.)	Baltimore	1.80	1.95	1.85	*1.70@ 1.80*
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.45	1.40	1.50	1.40@ 1.60
Pool 54-64 (Gas and St.)	Philadelphia	1.55	1.50	1.50	1.40@ 1.60
Pool 54-64 (Gas and St.)	Baltimore	1.40	1.65	1.45	*1.35@ 1.50*
Pittsburgh St'd. gas	Pittsburgh	2.65	2.65	2.65	2.60@ 2.70
Pittsburgh mine run (St.)	Pittsburgh	2.15	2.15	2.15	2.10@ 2.20
Pittsburgh slack (Gas)	Pittsburgh	1.80	1.75	1.65	1.60@ 1.70
Kanawha lump	Columbus	2.95	2.50	2.65	2.50@ 2.75
Kanawha mine run	Columbus	1.80	1.65	1.65	1.50@ 1.80
Kanawha screenings	Columbus	1.50	1.15	1.30	**1.25@ 1.45**
W. Va. Splint lump	Cincinnati	.....	.....	2.55	**2.50@ 2.75**
W. Va. Gas lump	Cincinnati	2.50	2.45	2.25	*1.75@ 2.25*
W. Va. mine run	Cincinnati	1.45	1.35	1.45	**1.50@ 1.65**
W. Va. screenings	Cincinnati	1.00	1.05	1.10	**1.25@ 1.35**
Hocking lump	Columbus	2.85	2.50	2.65	**2.60@ 2.85**
Hocking mine run	Columbus	1.85	1.90	1.75	**1.75@ 2.00**
Hocking screenings	Columbus	$1.50	$1.25	$1.35	$1.25@$1.50
Pitts. No. 8 lump	Cleveland	3.50	3.05	3.00	**3.00@ 3.25**
Pitts. No. 8 mine run	Cleveland	2.10	2.00	2.00	*1.95@ 2.00*
Pitts. No. 8 screenings	Cleveland	1.95	1.55	1.70	*1.60@ 1.75*
Midwest					
Franklin, Ill. lump	Chicago	3.50	3.65	3.65	3.25@ 4.05
Franklin, Ill. mine run	Chicago	2.80	2.35	2.35	**2.25@ 2.75**
Franklin, Ill. screenings	Chicago	2.00	1.90	2.00	*1.65@ 2.25*
Central, Ill. lump	Chicago	3.10	3.00	3.00	2.75@ 3.25
Central, Ill. mine run	Chicago	2.50	2.35	2.35	2.25@ 2.50
Central, Ill. screenings	Chicago	1.80	1.50	1.65	**1.60@ 1.90**
Ind. 4th Vein lump	Chicago	3.35	3.25	3.25	3.00@ 3.50
Ind. 4th Vein mine run	Chicago	2.55	2.40	2.50	2.35@ 2.65
Ind. 4th Vein screenings	Chicago	2.10	1.60	1.85	**1.75@ 2.00**
Ind. 5th Vein lump	Chicago	2.95	2.95	2.95	*2.60@ 3.00*
Ind. 5th Vein mine run	Chicago	2.25	2.20	2.25	2.10@ 2.40
Ind. 5th Vein screenings	Chicago	1.65	1.45	1.55	**1.50@ 1.75**
Standard lump	St. Louis	2.75	2.90	2.90	2.65@ 3.00
Standard mine run	St. Louis	1.90	2.00	1.90	1.85@ 2.00
Standard screenings	St. Louis	1.35	1.00	1.00	**0.90@ 1.20**
West. Ky. lump	Louisville	2.75	2.60	2.60	*2.40@ 2.75*
West. Ky. mine run	Louisville	1.75	1.90	1.90	*1.70@ 2.00*
West Ky. screenings	Louisville	1.25	0.95	1.15	**1.00@ 1.50**
South and Southwest					
Big Seam lump	Birmingham	2.75	2.90	2.90	2.75@ 3.00
Big Seam mine run	Birmingham	2.10	1.85	1.85	1.75@ 2.00
Big Seam (washed)	Birmingham	2.15	2.10	2.10	2.00@ 2.25
S. E. Ky. lump	Louisville	2.85	2.75	2.90	*2.65@ 2.85*
S. E. Ky. mine run	Louisville	1.55	1.55	1.45	**1.50@ 1.75**
S. E. Ky. screenings	Louisville	1.25	1.10	1.15	1.10@ 1.25
S. E. Ky. lump	Cincinnati	2.55	2.75	2.90	*2.50@ 2.85*
S. E. Ky. mine run	Cincinnati	1.35	1.45	1.45	**1.50@ 1.75**
S. E. Ky. screenings	Cincinnati	1.10	0.95	0.85	**1.00@ 1.10**
Kansas lump	Kansas City	5.00	5.00	5.00	5.00
Kansas mine run	Kansas City	4.10	4.00	4.00	4.00
Kansas screenings	Kansas City	2.50	2.50	2.50	2.50

*Gross tons, f.o.b. vessel, Hampton Roads
†Advances over previous week shown in **heavy type**, declines in *italics*

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	Jan. 30, 1922 Independent	Jan. 30, 1922 Company	Feb. 6, 1922† Independent	Feb. 6, 1922† Company	Feb. 13, 1922† Independent	Feb. 13, 1922† Company
Broken	New York	$2.61	.....	$7.60@$7.75	.....	$7.60@$7.75	.....	$7.60@$7.75
Broken	Philadelphia	2.66	$7.00@$7.50	7.75@ 7.85	$7.00@$7.50	7.75@ 7.85	$7.00@$7.50	7.75@ 7.85
Egg	New York	2.61	7.25@ 7.75	7.60@ 7.75	7.50@ 7.75	7.60@ 7.75	7.50@ 7.75	7.60@ 7.75
Egg	Philadelphia	2.66	7.15@ 7.75	7.75	7.15@ 7.75	7.75	7.15@ 7.75	7.75
Egg	Chicago	5.63	7.50*	6.95*	7.50*	6.95*	7.50*	**7.40***
Stove	New York	2.61	7.85@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10	7.85@ 8.10	7.90@ 8.10
Stove	Philadelphia	2.66	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8.25
Stove	Chicago	5.63	7.75*	7.20*	7.75*	7.20*	7.75*	**7.60***
Chestnut	New York	2.61	7.85@ 8.10	7.90@ 8.10	7.85 @8 10	7.90@ 8 10	7.85@ 8.10	7.90@ 8.10
Chestnut	Philadelphia	2.66	7.75@ 8.15	8.05@ 8.25	7.75@ 8.15	8.05@ 8 25	7.75@ 8.15	8.05@ 8.25
Chestnut	Chicago	5 63	7.75*	7.20*	7.75*	7.20*	7.75*	**7.60***
Pea	New York	2.47	4.75@ 5.50	6.05@ 6.45	5.00@ 5.75	6.05@ 6 45	*5.00@ 5.50*	*5.75@ 6.50*
Pea	Philadelphia	2.38	4.75@ 5.00	6.15@ 6.25	4.75@ 5.00	6.15@ 6 25	4.75@ 5.00	6.15@ 6.25
Pea	Chicago	5.63	6.10*	5.60*	6.10*	5.60*	6.10*	**6.10***
Buckwheat No. 1	New York	2.47	2.85@ 3.50	3.50	3.00@ 3.50	3.50	**3.00@ 3.60**	3.50
Buckwheat No. 1	Philadelphia	2.38	2.75@ 3.25	3.50	2.50@ 3.25	3.50	**2.75@ 3.25**	3.50
Rice	New York	2.47	2.00@ 2.50	2 50	2.00@ 2.50	2.50	2.00@ 2.50	2.50
Rice	Philadelphia	2.38	2.00@ 2.25	2 50	1.75@ 2.25	2 50	1.75@ 2.25	2.50
Barley	New York	2.47	1.35@ 1.75	1 50	1.50@ 1.75	1.50	1.50@ 1.75	1.50
Barley	Philadelphia	2.38	1.25@ 1.50	1 50	1.00@ 1.50	1.50	**1.00@ 1.75**	1.50
Birdseye	New York	2.47	.....	2.50	.....	2.50	.....	*2.00@ 2.50*

*Net tons, f.o.b. mines. †Advances over previous week shown in **heavy type**, declines in *italics*.



Coal Age Index, 183, Week of Feb. 18, 1922. Average spot price for same period, $2.22. This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the total output of the United States, weighted in accordance first with respect to the proportions each of slack, prepared and run-of-mine normally shipped and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke, 1913-1918," published by the Geological Survey and the War Industries Board. The result is a series of index numbers, plotted in the above diagram.

Agricultural products are in much better position, and this has a definite bearing on the coal market. Iron and steel, while not up to the level anticipated for this time of the year, give promise of early improvement. Late reports indicate that unemployment has waned slightly. From these and other signs a better market is seen, based on actual requirements, although conditions are still far below normal. The feeling prevails in trade circles that the disposition of the wage question will remove the bar to a more healthy demand.

For the first time in months, mines in the Middle West are behind on their domestic orders. Aside from the inevitable strike stimulus there is a little better market for coal for current requirements reported from nearly every important center. Buyers are seeking quotations on new contracts as well as protection over the next 45 days, but producers are not inclined to quote on much forward business.

Non-union mines continue to obtain the major portion of any competitive business offering. Pittsburgh district producers have failed to obtain much additional tonnage, the business going largely to the Connellsville section, but producers report that the men appear only passive in their stand on the check-off controversy, despite the attitude of their leaders, and that individual working agreements seem likely before April 1.

ANTHRACITE

Production during the week ended Feb. 4 increased to 1,811,000 net tons, compared with 1,607,000 tons the week before. While the retail business has improved, hand-to-mouth buying is still the order of the day. This attitude of the householder is reflected in retailers' orders to the mines, and yard stocks are gradually being worked off. Independents are working at a better rate, although their domestic prices at the most are only equal to company schedules. Steam sizes are growing scarcer and quotations are up.

A sudden increase has occurred in all-rail shipments to New England. During the week ended Feb. 4 3,047 cars were forwarded, 1,297 more than in the previous week.

COKE

Beehive coke production was 122,000 net tons during the week ended Feb. 4, an increase of 9,000 tons when compared with the previous week. The market is slightly stronger, as offerings have been very restricted lately. Producers are finding the coal market more attractive at the present time and coke buyers have been unable to obtain tonnage at the low prices which recently prevailed.

Foreign Market And Export News

British Export Coals More Active; Further Rail Cut Urged; Production Increases

Production in Great Britain during the week ended Jan. 28 increased to 4,739,000 gross tons from 4,561,000 tons in the preceding week, according to a cable to *Coal Age*.

The market has been featured by more active buying, in which France, Italy, Spain and South America participated. Heavy orders are coming from India and the Far East and prices have stiffened. British railway coal contracts have been arranged for a six months' period. The prices are from 11s.@12s. below the last contracts. The Eastern Coast market has strengthened with prices generally a shilling higher. New business includes 40,000 tons of gas coal for Stockholm at 20s. 6d.; 20,000 tons of coking coal, unscreened, for Belgium at 72 francs c.i.f., delivery over the next three months; 60,000 tons of coking coal, unscreened, f.o.b., delivery monthly throughout the year.

The latest figures show that unemployment tends to decrease. According to the official *Labor Gazette*, there were 1,069,726 wage earners on the colliery books of the United Kingdom for the fortnight ended Dec. 17, 1921. This is an increase of 0.6 per cent as compared with the figures for the previous month. There is also an improvement in the number of days worked per week.

Owners are still dissatisfied with the reduction in rail rates—8d. for export coal and 11d. for industrial fuels—and will approach the railroad companies for a further reduction. The owners consider that the reduced transport and shipment charges are still too high to afford any considerable relief to the industry and that the trifling and altogether unsatisfactory character of the decreases announced in respect of shipment charges is no encouragement to development. Such costs are in certain districts still in the neighborhood of 400 per cent above their pre-war level.

The Mining Association points out that there has been an appreciable increase in the volume of coal export traffic, the tonnage in December being at the rate of 52 millions a year, as compared with the corresponding figure of 27 millions for 1920, based on the exports during December of that year. Further there have been substantial reductions in locomotive coal since the case for reduced rates was submitted by the owners last October, while the railroads have further benefited from recent reductions in wages and in the cost of all materials and stores.

A statement issued by the Northumberland Miners' Association sums up the feelings of the miners throughout Britain on the prospects for a brighter future. The statement reads, in part, "As we look into the future we are not so hopeful of a rise in wages as we are

of a fall in the cost of living, which will give to wages a greater value. Our hope is not only in the probable fall in the cost of living, but we expect much from a fall in the cost, other than wages, of producing coal. Colliery owners must recognize that only by educative knowledge of what the various costs are will workmen ever be induced to share the responsibility, as they should do, of keeping those costs down. Therefore, instead of hiding the separate costs in the lump sum, they would serve their own interest best by itemizing these costs as far as possible."

The British Treasury has issued a Minute dealing with the method adopted for effecting payment by Italy for certain deliveries of coal made by France to Italy during the war. The French Government explains that the supply of this coal to Italy has involved the purchase by France from Britain of coal in replacement. These purchases were effected from advances made to France by Britain, and accordingly France has asked that the French debt be reduced and the Italian debt to Britain increased by the value of the coal deliveries, amounting to £2,021,858. This course has been agreed to and Italian Treasury bills have been accepted by Britain and French Treasury bills surrendered to the equivalent value.

Coal Paragraphs from Foreign Lands

SPAIN—All restrictions have been removed until further notice on the exportation of coal and other kinds of mineral fuel. This relaxation is necessitated by the large surplus stocks accumulating at the pit heads, due to the industrial slump, which has caused domestic production to be in excess of the national needs. The Ministry of the Interior is given power to limit or suspend exportation if the national situation demands such action.

SOUTH AFRICA—The general strike originated in the refusal of wage-earners to fall in line with the march of deflation, as coal-miners objected to a five-shilling cut. The long-standing color problem was injected into the controversy, making the adjustment more difficult. There is no disposition of owners to remove the "color bar"; what they desire is the maximum economic production. The method of obtaining this, whether through a greater ratio of colored labor or more hours per day, is now the problem confronting General Smuts and his conferees.

ITALY—Cardiff steam first is quoted on the Genoa market at 38s. according to a cable to *Coal Age*. The market has taken an upturn since the last report, when the ruling quotation was 37s. 3d.

Export Clearances, Week Ended, Feb. 9, 1922

FROM HAMPTON ROADS

	Tons
For Africa:	
Br. S.S. Heathfield, for Dakar	7,026
Du. S.S. Bondowaso, for Port Said	5,167
Am. S.S. Sioux, for St. Lucia	2,395
For Argentine:	
Du. S.S. Veerhaven	4,054
For Atlantic Islands:	
Nor. S.S. Johan Ludwig Morwinckel, Guayabal	2,000
For Brazil:	
Br. S.S. Mitchell, for Para	1,202
For Canada:	
Br. S.S. Bethlehem, for St. Johns, N. B.	3,054
Sw. S.S. Italia, for St. Johns, N. B.	2,610
For Cuba:	
Nor. S.S. Trafalgar, for Antilla	2,471
Dan. S.S. Viborg, for Havana	2,675
Nor. S.S. Holigjerd, for Sagua la Grande	2,006
Am. Schr. St. Johns, N. F., for Sagua la Grande	3,113
For Portugal:	
Port. Schr. Aveiro, for Lisbon	1,269
FROM PHILADELPHIA:	
For Cuba:	
Am. Schr. Charles Chittemore, for San Juan	

Favorable Developments at the Roads

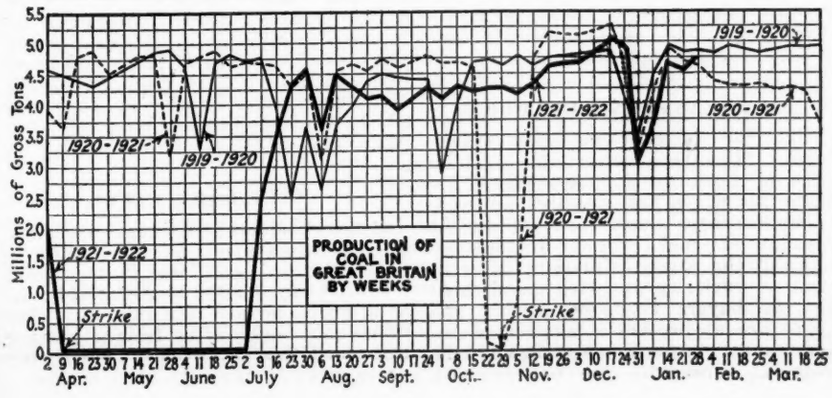
Dumpings were brisk during the week ended Feb. 9, although they showed a slight decrease from the week before, with business better at the end of the week and demand growing. Accumulations were increasing, with upward of 300,000 tons on hand at the end of the week.

Prices of the best grades held firm, while Pool 2 was quoted as low as $4.35, with $4.40 as the general quotation. Considerable supply was being held on the spot, with demand picking up at the week-end.

Increased production at the mines was responsible for large surplus supplies on hand here. The tone of the market is somewhat stronger than at any time the last 30 days.

Dealers were optimistic of a continued revival in trade. One favorable note struck in the market was in the announcement that the Old Dominion Investment & Holding Co. will charter five steamers to carry coal from Hampton Roads to the company's paper mills in Canada.

The passage of the $5,000,000 port bond issue, providing for erection of municipal terminals, is taken by coal men to mean that business will take another leap at Hampton Roads, with the prospect of an increase in general shipping.



Pier and Bunker Prices, Gross Tons

Foreign Bunker Quotations by Cable to Coal Age

	Feb. 4	Feb. 11†
PIERS		
Pool 9, New York	$5.60@$5.80	**$5.65@$5.90**
Pool 10, New York	5.25@ 5.50	**5.35@ 5.55**
Pool 9, Philadelphia	5.50@ 5.70	5.50@ 5.70
Pool 10, Philadelphia	5.15@ 5.35	5.15@ 5.35
Pool 71, Philadelphia	5.65@ 5.80	5.65@ 5.80
Pool 1, Hamp. Rds.	4.65@ 4.75	*4.65*
Pools 5-6-7 Hamp. Rds	4.30	4.30
Pool 2, Hamp. Rds.	4.45	*4.40*
BUNKERS		
Pool 9, New York	5.95@ 6.15	**6.00@ 6.20**
Pool 10, New York	5.60@ 5.85	**5.65@ 5.90**
Pool 9, Philadelphia	5.75@ 6.00	5.75@ 6.00
Pool 10, Philadelphia	5.55@ 5.65	5.55@ 5.65
Pool 1, Hamp. Rds.	4.75	*4.75*
Pool 2, Hamp. Rds.	4.60	*4.55*
Welsh, Gibraltar	38s. f.o.b.	38s. f.o.b.
Welsh, Rio de Janeiro	55s. f.o.b.	55s. f.o.b.
Welsh, Lisbon	40s. f.o.b.	40s. f.o.b.
Welsh, La Plata	50s. f.o.b.	50s. f.o.b.
Welsh, Marseilles	120 fr. f.o.b.	120 fr. f.o.b.
Welsh, Genoa	40s. t.i.b.	40s. t.i.b.
Welsh, Messina	37s. t.i.b.	*36s. 6d. t.i.b.*
Welsh, Algiers	35s. f.o.b.	35s. f.o.b.
Welsh, Pernambuco	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Bahia	62s. 6d. f.o.b.	62s. 6d. f.o.b.
Welsh, Madeira	40s. f.a.s.	40s. f.a.s.
Welsh, Teneriffe	40s. f.a.s.	40s. f.a.s.
Welsh, Malta	40s. f.o.b.	40s. f.o.b.
Welsh, Las Palmas	40s. f.a.s.	40s. f.a.s.
Port Said	49s. f.o.b.	49s. f.o.b.
Belgian, Antwerp	30s.	30s.
Alexandria	45s.	45s.
Bombay	38 rupees	38 rupees
Capetown	42s.	42s.

Current Quotations British Coal f.o.b. Port, Gross Tons

Cardiff:	Feb. 4	Feb. 11†
Admiralty, Large	24s. 9d.	24s. 6d.@25s.
Steam, Smalls	18s. 6d.	18s. @ 19s.
Newcastle:		
Best Steams	24s. 6d.	**24s. 9d.@25s.**
Best Gas	21s. 9d.	**22s. 6d.@23s.**
Best Bunkers	21s. 6d.	**22s. @22s. 6d.**

† Advances over previous week shown in **heavy type**; declines in *italics*.

German Production Increasing

Production in the Ruhr region during the week ended Jan. 28 was 1,908,000 metric tons, according to a cable to *Coal Age*. The output of the previous week was 1,929,000 tons.

German production for the first nine months of 1921 was considerably larger than during the corresponding period of 1920, according to figures published by *Commerce Reports*. The output, as shown in the following table, does not include production of Alsace-Lorraine, Paltinate and the Saar.

GERMAN PRODUCTION, JAN.-SEPT.

Kinds of coal	January-September— 1913	1920	1921
	Thousands of Metric tons		
Pit coal	130,178	95,737	100,603
Lignite	64,132	81,193	90,820
Coke	22,768	18,292	20,760
Briquets:			
Hard coal	4,406	3,571	4,275
Lignite	15,994	17,921	22,239
Pit coal in the Saar	.....	6,892	6,149

A very definite influence on production costs of all commodities will be exercised by the advance in freight rates, Feb. 1, averaging 33⅓ per cent, the proposed doubling of the coal tax (to 40 per cent) as well as the additional normal taxation necessary to meet, even partially, the heavy deficits in both the ordinary and extraordinary budgets.

Bavarian coal deposits have been located between Morishofen and Stockheim. Hitherto Bavaria has had no coal supply of its own and has suffered seriously from strikes and transportation difficulties.

Cincinnati Gateway

Contract Inquiries Find Few Takers in Cincinnati

Uncertainty Regarding Labor Developments Around April 1 Has Deterrent Effect — Warmer Weather Lessens Domestic Consumption — Industry Perks Up a Little

Buyers are coming into the market for reserve coal, to be stored as a precaution against the threatened strike. Domestic fuels are in slightly less demand as the warmer weather has brought some let-up in consumption. The better grades are still moving very well, however.

Customers are inquiring for contract coal, but takers are few, as much hinges on labor developments around April 1. Industrial requirements are slightly increased, following greater manufacturing activity.

CINCINNATI

Sharp contrasts were shown in the market last week. Domestic coal, on which most of the attention has been showered for months was dull. Poorer grades of West Virginia sagged below the $2 mark. On the other hand mine run and steam sizes showed a stronger tone and with increasing inquiry better grades of splints and some gas coals showed a price advance.

Hazard operators seem to have oversold on low-priced bituminous lump and block, according to the inquiries that keep coming in. While this has not advanced the price it has helped to stabilize the market. West Virginia gas block and lump is hard to move, while the splint is a bit better off. Run of mine from the latter state has advanced and some sells 10c. above the same type offered from southeastern Kentucky. Slack is equally as firm.

A cold spell helped along the retail business for a few days, though it has again dropped back into a give-and-take condition with deliveries about keeping pace with actual requirements. Pocahontas lump and egg sells at $8, run of mine at $6.25@$6.50 and screenings, $5.25@$5.50. Bituminous lump is $6.50@$7; run of mine, $5.50@$5.75 and slack, $4.50. This last is an advance of 50c. a ton which followed the wholesale increase of the past few days.

LOW-VOLATILE FIELDS

New River and the Gulf

New River production is being steadily increased. This is made possible by a better Tidewater market, weather conditions and an impending strike. Industrial conditions are unchanged.

Gulf mines are now producing at a rate of about 60 per cent of potential capacity. Bunkers are more active and the line business has also increased. Although part of the additional demand is due to artificial causes, nevertheless nearly all mines now have enough business to keep them operating part of the time at least.

Pocahontas and Tug River

Although not greatly stimulated, Pocahontas production is proceeding at a rate not under 60 per cent of capacity. As production has become stabilized at this figure it indicates to what extent contract shipments are being made. Eastern business has improved considerably and larger shipments are being made to coastwise markets, while domestic has a ready sale in the West. Nut and slack is plentiful with comparatively very little market.

Shipments from the Tug River section continue at about 90,000 tons weekly. There is a little better demand in evidence, however. Much of the coal is going West and contracting is also being done on a small scale, but producers prefer to await April 1 before making many new agreements.

HIGH-VOLATILE FIELDS

Kanawha

Present wage scales make it impossible for producers to secure any of the better business that is going past them. The prospect of a strike has caused a buying spurt in the non-union high-volatile districts. Production early in the month was limited to 8,500 tons daily, representing the output of only a few mines in the territory.

Logan and Thacker

With the possibility of a strike Logan production has increased and inquiries have become more numerous. Many orders for delivery over sixty days have been placed, which has stiffened the market.

Larger railroad fuel consumption enabled Thacker operators to increase their tonnage. The probability of a strike has also induced buyers to place additional orders. This emergency buying was confined for the most part to mine run.

Northeastern Kentucky

Production has been stimulated by a better domestic demand and also by the strike talk, with the result that about 50 per cent of capacity is being mined. The larger sales of steam coal are attributed almost entirely to the strike discussion. Slack is more plentiful and prices have consequently eased up.

SOUTHEASTERN KENTUCKY

Call for domestic is again stimulated. Mines are better able to take care of bookings for screenings, demand for which has steadily improved.

While there has been no great amount of coal bought for storage against the strike situation, a great deal of curiosity is being manifested by big buyers over the matter and there are at present a number of inquiries for large tonnages going the rounds. Operators are not inclined, however, to quote for future delivery and actual bookings continue to be on hand-to-mouth basis.

Prices are firm, with a slight upward trend and are shown in the Weekly Review.

West

DENVER

The industry, as a general thing, is disorganized, due to over-production and mild weather. Bituminous coking coal from Trinidad is down to $2.50 at the mine, and is retailing for $6.60 instead of $7.40. Walsenburg and Routt bituminous slack sells for $1.75 @$2, having been cut 75c., and retails for $5.45 in Denver.

Nine small dealers are reported to have taken over a contract to supply sugar factories with 30,000 to 40,000 tons of lignite slack, getting $1.50@ $1.75 a ton. Two large concerns that formerly received this contract have been left out of the deal, it is understood, and are unloading their slack for 50c.@$1 a ton at the mine.

Most of the mines which asked the state industrial commission for authority to cut wages have been granted this right. The North Park Coal Co. sought reductions which, the commission declared, were lower than wages paid in other mines. There is a higher freight rate between this and competitive territory into Denver, and the company sought to show that only a very low wage scale could meet the prices of other mines. This is the only case where the commission has refused authority to cut rates.

KANSAS CITY

Spring weather has continued and prevented any change in market conditions. The light demand for lump and nut has reacted on the steam market to some extent with the result that the surplus of steam coal is not noticeable. There is no change in the price of Kansas slack and Illinois slack is continuing in erratic quotations ranging $1.25@$1.40 f.o.b. mines, central Illinois district.

Were it not for the many discouraging features there is no doubt that the Southwestern operators would feel considerably heartened by other factors which will affect future business. Increases in farm products will mean additional profit to the farmers and will have a great deal of influence on the coal market situation during the spring months. North Missouri lump is $4.75; mine run, $3.50, washed slack, $3.25, raw slack, $2.50; Arkansas lump, $6, mine run, $4, slack, $2.50@$3; McAlester lump, $8.50, nut, $7, slack, $2.50; central Illinois lump, $2.75@ $3.25, egg, $2.50, slack, $1.25@$1.40.

SALT LAKE CITY

Retail business continues excellent. The operators also report an improvement, but owing to the Pacific Coast market being flooded with foreign coal at a much cheaper rate than the Utah mines can make, after freight charges are added, this improvement is not such as to make things even near normal.

Northwest

Coal Market in Northwest Keeps Pace with Weather

Seasonable Temperature Brings Activity in Domestic Fuel—Movement Off Docks Is Heavier—All-Rail Coal Being Stored in Case of Labor Troubles

Northwestern markets continue to be purely a weather proposition. Industrial consumption has increased only slightly but domestic coals are more active with a period of seasonable weather. Coal is moving off the docks in heavier volume and some all-rail fuel is being stored in anticipation of labor troubles at the mines. Prices have been increased, although quotations on the Minneapolis market are still lower than those prevailing a few weeks ago.

DULUTH

Shipments from the docks showed a large increase during January as a result of cold weather over the Northwest. The shipments aggregated 24,521 cars as compared with 15,444 during December, and only 8,403 cars during January last year.. Duluth docks shipped out 8,887 cars and Superior docks 15,634.

Demand for Iron Range towns is much better this week. Intermittent cold weather has had much to do with this increase, of course, but it is thought business conditions in the Northwest are improving as well, and that more money is in circulation to enable people to lay in supplies of coal.

Dock prices on bituminous and anthracite are holding along the line with every appearance of continued firmness. Pocahontas is at $9 for lump, but run of mine has dropped to $6 from $7 and screenings are off to $5. Regular screenings are skyrocketting. Prices last week were quoted at $4, and an advance to $4.25 is predicted.

More complaints are being received about the quality of anthracite being sold here. A big selling move is being planned by dealers and dock men here to get the docks ready to receive cargoes at the opening. The push will be put on within the next week and will include a fine-tooth survey of the Northwest with an idea of finding out any possible places where coal can be placed.

MINNEAPOLIS

Cold weather, which has prevailed for some time, has had its effect. Prices on soft coal, which were advanced 50c. by a single company a couple of weeks ago, have been marked up by some of the others. Since the cut some weeks ago was $1 a ton this is not much of an advance, all things considered. But it is probable that it is all the market will stand this season.

However, except for the keen competition the present winter has not been a bad one from the standpoint of the coal business. But now with spring in sight it is hardly possible for much more to be expected in the way of tonnage moved. Domestic, apartment, hotel and office building heating consumption has run to a very fair total. But without a better outlet through industrial and railroad needs, there is not much hope for more than a moderate total of coal to go into consumption.

Hard coal will probably show a fair volume for the winter. It has had considerable competition from coke and various soft coals, which have kept down consumption. But after this has been allowed for, there still remains a considerable tonnage, and the high prices have not kept these from buying.

Soft coal has gone into domestic use perhaps a little freer, relatively than hard. It has been possible to get some grades which were out of the market until within a year, such as smokeless. Many people have turned to this as a substitute for hard coal. Other Eastern soft coals have also been resorted to as a substitute for hard coal. But in many instances, consumers have found that the substitutes were unsatisfactory. So the trade has had a great deal of experimenting done by consumers, and with varying results.

The past week has been one which stimulated orders, for there have been two or three mornings when the thermometer went low. People are stringing out their supplies as long as possible, and these days have run down their fuel piles to the vanishing point.

MILWAUKEE

The market is more satisfactory to dealers just now than it has been at any time during the present winter. Home consumption is better in the city, and industrial plants are beginning to husband stock piles in anticipation of mine troubles in the spring.

Jobbers of rail coal report a stiffening in the supply of Pocahontas and screenings in the East, and a disposition to be more firm as to price. Dock men also evince an inclination to be less free in marketing their holdings of screenings.

This attitude tends to dissipate the feeling which has lingered in the minds of some consumers that soft coal and possibly hard was in for a drop before spring. No change in prices of hard or soft coal have been announced. One of the floating cargoes of hard coal and two cargoes of soft coal have been unloaded thus far this month, and other cargoes will follow as fast as the docks afford room.

New England

All-Rail Receipts Soar With Delay of Water Cargoes

Heavy Weather Responsible for Tardy Arrival of Shipments from Hampton Roads—Industries Have 60-90 Days' Supply — Will Rely on Non-Union Fields in Event of Strike

New England feels a slight impetus to the spot coal market. Receipts, largely Southern coals, are heavier than in recent weeks. Heavy weather held up Hampton Roads boats early this month, and this accumulation is just getting in.

All-rail shippers were quick to take advantage of the forced lull in water receipts and higher marine freights, which accounts for substantial gains in all-rail tonnage.

Many manufacturers now have 60 to 90 days' supply on hand and the general disposition is to rely on non-union receipts to see this market through the strike period. Indications, therefore, are that buying in March will be less active than during the last 30 days.

There is a fair amount of cautious buying, but most of the purchases are of Pocahontas and New River coming forward by the water route. The textile, paper, and shoe trades are all suffering from light business and it is quite probable that with reserves now being accumulated there will be less buying of coal in March than in February. In several instances lately mill buyers have turned down offers that they were accepting a fortnight ago. In other words, coal is now being received here at a rate much faster than current consumption would require.

Rates of freight coastwise from Hampton Roads continue reasonably firm. As high as $1.25 has been paid for smaller sized steamers for one or two trips, but even at that rate, if sustained for a time, there will be enough other bottoms put into service from fleets now tied up to make rates react. Along the Sound where there is still a great surplus of small barges from New York there has been no change in freights, 70c. being still the open rate to Providence.

The number of plants equipped with mechanical stokers is now large enough to make a fair demand for smokeless slack and requirements of this kind supplement very nicely the somewhat increasing inquiry in the West for prepared lump and egg, especially from the Pocahontas field.

Grades from central Pennsylvania meet with only a slightly better demand. Producers of some of the quality grades report more inquiry and enough business to run three and four days per week, but there is no snap and it is only by constant plugging that orders are secured.

Should marine freights advance another 10@15c. or even hold where they are, there would soon be a tendency to enlarge somewhat in New England the outlet for Pennsylvania coals all-rail. The Connecticut River has heretofore been the dividing line, at least since 85c. freights from Hampton Roads were first quoted 60 days or so ago, but there is enough good coal available in Pennsylvania and Maryland to make an impression in this now contested territory.

Anthracite

Domestic Yard Stocks Retailers Lag in Ordering

Seasonable Weather Enlivens Retail Distribution—Retail Supplies Will Be Much Reduced by April 1—Independent Operations Heavier—Steam Coals Very Active.

Retail distribution of hard coal is progressing actively, following more seasonable weather. As has been the case all winter, however, the householder is buying only in small lots. Yard stocks of domestic coal are dwindling, as retail dealers are not ordering freely for replenishment, and it is evident that Aprli 1 will see retail supplies much reduced.

Independent operations are heavier, but domestic prices obtained are at best only on a level with winter schedules of the larger producers. Steam coals are very active and premiums are easily obtained.

PHILADELPHIA

Retail buying recently has been fair. The buying continues to be in small lots, however.

Some of the retail yards have also developed an extensive trade supplying the peddlers, which business was looked at somewhat askance during former years. There is now more coal being bought in this way than ever known heretofore.

Retail stocks are decreasing, as dealers are ordering lightly—just about sufficient to keep ahead of current demand. The strike question has yet failed to exert any influence on the consumer, who seems to view the subject with entire indifference.

With one of the companies trying out a "range" size—a mixture of nut and the larger pea coals—the latter is eliminated entirely as a domestic size.

It is in the steam coals that strike talk is making itself felt, and on this account buckwheat and barley are in particularly lively demand. Independents seem well able to move these two sizes at close to company prices. Demand has been so brisk that the companies are beginning to pick up some coal from the storage yards.

NEW YORK

With buckwheat in better movement than pea, and the other domestic and steam sizes in good demand the anthracite situation shows improvement. Stove coal, which a few weeks ago was active is now the hardest to move but has not yet become a drug on the market. Pea coal is regarded as hopeless.

With the backbone of winter practically broken dealers are not taking any more coal than they deliver on orders. Consumers for the most part are buying in small lots, although many are filling their bins instead of placing their orders for next winter's fuel in April.

Independent coals are moving rapidly but are not bringing premiums. Pea is the drawback of the independents as with the companies. It was said that some of the companies were making concessions to their customers in order to move their tonnage.

Offers of washery coals were reported at quotations ranging around $6 for chestnut, $4 for pea and $3.15 for buckwheat.

The steam situation is causing some serious thinking. Buckwheat is still plentiful but this is due to the tonnage being removed from storage piles. Rice is moving quietly. Barley is the shortest of the three sizes. Most producers have the major portion of their present output on contract, leaving little for spot buyers.

BOSTON

Retail stocks have begun to show the effect of sustained cold weather and there is in consequence a better demand for domestic sizes. There is a disposition to keep closely in touch with the wholesale market and to order coal forward in prudent amounts. Buyers are advising their trade to make sure of supplies for March and April, or through to the end of the present season, but not yet has there been any concerted demand for another season's coal.

Independent quotations are somewhat firmer because of strike talk, but we have not yet heard of a rush for coal in any direction.

BALTIMORE

Except for a brief spurt, demand has been below normal, despite the fact that there has been less coal in cellars this winter than for a number of years past. The supply in yards here is now entirely sufficient to meet all conditions. Indeed one or two of the larger dealers who have large stock on hand are growing a bit nervous as they figure that spring will catch them with considerable stock still on hand unless there is a decided cold spell.

ANTHRACITE FIELDS

Improvement in the situation is lacking. The Glen Alden Coal Co. closed all of their mines for the last two days of the week. The Pennsylvania Coal Co. has announced an indefinite suspension of six mines in the Pittston region.

The prospect of a strike does not seem to increase the orders for anthracite. This tends to confirm the fact that there are large stocks of coal throughout the country.

BUFFALO

Colder weather is the chief reason for some improvement, yet at the same time the trade is saying that winter is not going to be severe and it will soon be going altogether. It is generally supposed that the consumers have less coal in their cellars than they had a year ago and that they must buy more heavily as spring approaches.

Independent mines have put up their prices half a dollar or so, and are now getting circular prices or a little more. If the rest of February turns cold the premium will run up some.

There is no move yet to load coal to the Lake. Shippers are not certain what is best to do. They have the coal, but some predict that there will be too much coal carried over at upper ports to warrant rushing any up there next spring. So it may be best to wait till most of the winter demand is known.

Coke

CONNELLSVILLE

The coke market has been stiffening sharply in the past few days. Operators are less ready to sell since there is a broader market than formerly for coal. Right along prices have been better in the coal market than in the coke market, but it has been somewhat difficult to sell coal. Demand for foundry coke has definitely increased, probably due to a desire to stock coke. The spot furnace coke market is easily higher than the range quoted a week ago, $3 being probably the minimum at which any really good coke can be had, and even then the offerings would be limited. Foundry coke still ranges $3.75@$4.25, but there is only a little to be found at $3.75. Contract prices are not quotable, there being no inquiry, but operators certainly would not sell now at prices made a month or more ago.

The *Courier* reports coket production in the week ended Feb. 4, at 57,230 tons by the furnace ovens and 32, 960 tons by the merchant ovens, a total of 90,190 tons, a decrease of 160 tons.

UNIONTOWN

The coke market became unexpectedly strong last week due almost entirely to the blowing out of a substantial number of merchant ovens two weeks ago. Furnace coke of standard quality as a result became hard to locate for spot purchases.

The furnace coke demand and output have been brought so close together that the blowing out of some ovens became immediately noticeable. The only explanation advanced was that operators had learned the number of ovens needed to fill their contracts and were restricting their output to that number.

Talk of the impending coal strike several weeks ago started all sorts of speculation here as to its probable result on the unorganized fields. Operators are "sitting tight" awaiting developments. Most of them, however, are shaping their plants for capacity production if needed.

The spot market is unchanged. Sewickley vein steam coal is quoted at $1.35 and Pittsburgh steam at $1.50. Byproduct has a range of $1.60@$1.80.

BUFFALO

Demand is light, but jobbers sell a little now and then, where a factory has no regular supply. Contracts and local byproduct plants furnish about as much as is needed. The local shipper is mostly waiting for an increase of demand when business is better. Prices are steady at $4.35 for Connellsville foundry, $3.15 for furnace and $2.75 for stock, with some domestic sizes at $3.75, to which add $3.64 for freight.

Eastern Inland

Industry Improves; Orders and Inquiries Increase

Much Stimulation Attributable to Strike Talk—Stocking of Coal Is Gaining—Low-Price Levels Disappear — Non-Union Fields Obtain Most of the Business

The current market in the Eastern Inland section hinges on the developments in the strike situation. Stocking of coal in anticipation of trouble is gaining way and the former low-priced levels have about disappeared. A price boom is not likely, however, as too many mines are only awaiting a heavier call to resume work.

While much of the stimulation is due to the strike talk, better industrial conditions are responsible for some increase in orders and inquiries. The competitive non-union fields are securing much of the business offering.

CLEVELAND

Large consumers remain to be convinced that the prospective coal strike is to result in a prolonged interruption of production or a violent advance in prices. Operators are divided in their opinions upon the course of the market over the next few weeks. Some have now come to believe that no rush of consumers into the market is to be witnessed, as the restricted industrial activities, the feeling on the part of users that the strike will not be serious and the fact that consumers are betting upon lower freight rates and coal prices may prevent much buying.

Industrial conditions are slowly improving. One of the large steel companies with headquarters in Cleveland announced that sales in January were the largest in many months. This reflects some expansion in miscellaneous manufacturing activity, which in turn means larger coal consumption.

Railroads are not expected to do much more buying for storage purposes in anticipation of the strike. Many of them, it is believed, have adequate supplies on hand. Retail dealers also are buying closely despite the strike outlook. Warm weather is approaching they do not want to be loaded up with heavy stocks.

COLUMBUS

More activity is being shown in all directions, but especially in steam grades. Buying is going on mostly for immediate wants, but some purchasers are keeping an eye on the future and are buying to forestall a suspension after April 1. In the immediate market for Ohio coal there is no especial stimulation yet apparent because of the threat of a strike.

Public utilities are buying fairly well. There is a gradual expansion in manufacturing along certain lines and this should be reflected in better demand for fuel soon.

The domestic trade is still rather brisk, but the higher temperatures have taken the edge off the market. Retailers have only a fair tonnage on hand but they are not inclined to stock up much under the circumstances. Retail prices are not advancing but there is less cutting reported.

BUFFALO

The situation hinges entirely on the prospect of a long shutdown in April. Many factories are waking up pretty fast now, as the increased mining of coal lately shows. It is predicted that most of the consumers who are not well stocked will buy more liberally from now on.

It is hard to say how large a proportion of the consumers are without a supply that will last them through the period of wage fixing. That is something that they are not anxious to disclose. Prices show firmness at $2.75 for Youghiogheny gas lump, $2.50 for Pittsburgh and No. 8 steam lump, $2.25 for Allegheny Valley and other mine run and $1.50@$1.75 for slack, adding $2.36 to Allegheny Valley and $2.51 to other coals to cover freight.

DETROIT

Moderating weather has lessened the interest of domestic buyers. The business recently done assisted in reducing retail stocks but did not continue long enough to be productive of much business for the jobbers and wholesalers.

The steam coal branch is even more uninteresting. Consumers are doing little buying. So far, their attitude in reference to the possibility of an extensive strike at the mines, in connection with wage readjustments, is generally apathetic.

Smokeless lump and egg is offered at $3@$3.25; mine run, $2.15; nut and slack, $1.25. Four-inch West Virginia lump is $2.60@$2.75; two-inch lump, $2.25; egg, $2; mine run, $1.65; nut and slack, $1.25. Ohio 3-in. lump is $3; inch-and-a-quarter lump, $2.75; egg $2.25; mine run, $1.90; nut and slack, $1.60. Pittsburgh No. 8, inch-and-a-quarter lump is $2.35; three-quarter lump, $2.25; mine run, $2; nut and slack, $1.65.

PITTSBURGH

In the past week inquiry has continued to increase, and in rather marked fashion. The Pittsburgh district has been able to sell but little coal, its prices being, as for months past, quite out of line with those made by adjacent open-shop fields. That region is selling considerably more coal than a week or two ago and its prices are stiffer. There is no general advance, but the extreme or sacrifice prices have practically disappeared.

Buyers are not particular to state whether they desire additional coal on account of having increased consumptive requirements or wish it for stocking purposes. The coal trade assumes that the increased demand is chiefly for stocking purposes, against the generally expected mining suspension. The steel industry is running about 20 per cent heavier in tonnage than in December.

There are no definite developments in the wage matter. The common opinion now is that the check-off will be the chief point at issue. It is believed that while all the union officials are strongly committed to the check-off and would not consider any scale without it, the majority of the men are either lukewarm or are definitely opposed to the check-off.

Steam slack is $1.30@$1.50; gas slack, $1.60@$1.70; steam mine run and ordinary gas, $2.10@$2.20; ¾-in., $2.60@$2.70; Panhandle 1¼-in. domestic, $2.75@$2.90; high-grade gas mine run, $2.75@$3.

EASTERN OHIO

Production rose sharply during the week ended Feb. 4. Total output amounted to 359,000 tons or 57½ per cent of potential capacity, an increase of 40,000 tons.

There is no longer any doubt but that the larger consumers have begun to stock in anticipation of mine-labor difficulties. The major portion of this reserve fuel has so far gone to public utilities and railroads, but operators have advised their customers that if they contemplate storing any fuel, they should begin immediately. This is based on the reasoning that once the storage movement gains momentum, it will result in a stiffening of prices.

Barometer reports from industrial centers continue to be slightly optimistic except that conditions in iron and steel are not improving to the extent that had been expected for this time of the year. The possibility of a coalition between miners and railroad employees, even though considered remote, is nevertheless a potential source of anxiety to buyers. Industrial plants have about 30 days' supply on hand and it is expected that a healthier demand will arise from this quarter.

The passing of extreme cold weather has resulted in some let-up in buying on the part of retail trade. With the increased production, slack has become more plentiful.

Receipts of bituminous coal at Cleveland during the week ended Feb. 4, amounted to 1,590 cars, maintaining the high figures of the past few weeks. Industries received 1,134 cars, an increase of 122 cars over the previous week.

TORONTO

Anthracite business has been only moderate owing to unusually mild weather. There are good supplies of all grades on hand. There is a slight improvement in the demand for bituminous, as some plants are now beginning to resume activity.

Quotations are as follows:

Retail	
Anthracite egg, stove and nut	$15.50
Pea	14.00
Bituminous steam	$9.25@9.75
Domestic lump	11.25
Cannel	16.00
Wholesale—f.o.b. cars destination	
¾-in. lump	7.00@7.75
Slack	6.00@6.75

North Atlantic

Orders Below Expectations, Though Inquiries Are Heavy

Coal Market Shows Marked Stimulus—General Tone Is Better—Industrial Activity Lags—Prices Firm, Even on Poor Grades.

Inquiries are heavy although actual orders are not so numerous as had been expected. However, a distinct stimulus has been felt in the coal market. The general tone is much better and good grades are being booked ahead wherever operators will take on this business.

Industrial activity still lags. Prices are firm on all coals, except for the screened gas varieties, which are in heavier volume due to the demand for slack. Tonnage at New York piers has been reduced but it is understood that there is considerable coal on the way on consignment.

NEW YORK

The market is stronger but demand is not active. Many inquiries are received but actual orders based upon them are scarce. The general tone is better and the prospects indicate a period of good business.

Producers and shippers of the better grades are heavily booked and some of the houses, having none of their own coals available for spot sales are about being forced into buying other coals. Quotations show a rising tendency.

The outcome of the Indianapolis convention will, it is thought, have a decided bearing on future conditions and may result in heavy buying between now and the time set for the expiration of the wage agreement. The railroads are taking more stock in anticipation of trouble.

UPPER POTOMAC

If anything, greater idleness prevails in these fields. Mines are unable to run profitably at current prices and it is impossible for the producers to take on any business as long as mining costs are as high as they are at the present time.

PHILADELPHIA

The slight show of strength recently apparent is maintained and if anything the buyer is showing a greater interest. A good percentage of recent purchases have been for other than current consumption.

There has been no real buying as yet by railroads. Of course, they are putting a little fuel into stock in excess of consumption, but are not in a rush about it and price must be right, according to their way of thinking. The industrial situation seems to be at a standstill.

It is no easy matter to record market prices, as there is so much difference of opinion. There can be no question that producers are anxious for higher prices and when merely asked their opinion as to the market, with no particular sale in view, are likely to get them high enough. We believe on the whole that there has been no real changes during the past week.

BALTIMORE

February trading has not been as brisk as the closing days of January, when a number of consumers came into the market apparently to store coal. The strongest feature has to do with the Pennsylvania and Western Maryland producing districts, where some of the specialized steam coals are holding up fairly well.

A very weak point is in connection with the Fairmont gas productions. There is a certain demand for slack, but it has to be sold on a low level. Nobody seems particularly interested in three-quarter, which, left over after screening for slack demand, has to be sold as run of mine.

The export movement continues flat, although February should on present figures run ahead of January. For the first week in February, two vessels cleared with a total of 6,633 tons cargo and 450 tons bunker.

CENTRAL PENNSYLVANIA

Stocking of coal has resulted in creating a temporarily lively market for fuel and the first few days of February witnessed a greater production than for some time. Coal operators are still working on the old adage that small orders are thankfully received and larger ones in proportion.

Coal has been placed on the preferred shipment list and many mixed trains are now being made up. This is an extraordinary situation and the only question now is, how long will it last.

Operators are not all agreed on the outlook, some contending that the demand will increase as April 1 approaches and that the month of March will witness strong buying. No break has been announced in prices and most operators are ready to put more men into the mines if occasion demands.

FAIRMONT

A slightly heavier line of orders is coming because of strike developments. Much of this emergency business is being placed with lower-cost mines. With decided uncertainty prevailing as to the future rate of wages, producers are not in position to make contracts for the new coal year at this time.

Chicago and Midwest

Stocking Against Strike Stimulates Production

Mines Fall Behind on Domestic Orders—Railroads Have 60 to 90 Days' Supply in Storage—With Industrial Consumption Heavier Trade Is Optimistic

For the first time in months mines are behind on their domestic orders. Production has been greatly stimulated and steam sizes are well taken because of the growing desire of buyers to be protected over the strike period. Non-union coals are active and prices have risen. Railroads have been quietly laying in a surplus and now have from 60 to 90 days' supply.

The market is very skittish, with a distinctly upward trend to all forward quotations. While the strike talk is responsible for most of the better demand, industrial consumption is heavier and coal men are optimistic of future conditions after the wage question has been settled.

Seasonable weather has caused the coal market to respond, developing a better call both in the steam and domestic grades.

Out in the country the demand for domestic coals remains steady. Eastern coals continue to be popular and quotations on West Virginia and Kentucky block advanced during the last week. Pocahontas also stood for a slight increase. Franklin County and other high-grade southern Illinois coals are holding very steady.

Buyers all require prompt shipments and pester the operators for car numbers. As a result, there are actually a few mines in both Indiana and Illinois who are now a little behind on their domestic orders.

Steam coals are strong, especially the different sizes of screenings. Prices have advanced all along the line. Both operators and sales agents are circularizing trade very heavily with literature relative to the threatened shut-down on April 1. The demand for steam coals is slowly but surely improving every day.

Taking all in all, the general tone is much sounder than it has been for a long time and coal men are, consequently, more optimistic. These optimists in the coal industry are basing their predictions for better times on the fact that unemployment is on the decrease according to the United States Department of Labor; that the stock market is showing very much better trend; that the railroads are slowly but surely doing a better business; that foreign exchange is improving, and lastly that the farmers are getting a little more money for their produce. Taking all these matters into consideration, the coal man believes that there are better times in store for him as soon as the trouble which threatened the first of April is out of the way.

CHICAGO

The Chicago market is on the mend as all grades of coal are holding steady, with prices slowly but surely climbing to higher levels. This is brought about

by the cold weather we are having, by the uncertainty of the strike situation and by some slight improvement in the industrial situation. Industries which have been in a dormant state for six months are now showing signs of activity and are planning on opening up very soon.

Steam coals are now active, although very few of the large industrial users are buying much for storage purposes. One curious development of the steam coal market during the past week or ten days has been the marked demand for screenings from non-union mines. West Virginia and eastern Kentucky operators are receiving many inquiries, calling for prices on 200 to 400 carload lots to move forward in regular equal weekly shipments between now and the first of April.

None of the railroads have stepped into the market to make any large purchases for storage purposes. Most of the railroads contracted for more coal last year than they actually have been able to use. As a result, they have been very quietly accumulating a surplus at various central points, so that in case there should be a strike nearly all of our roads are in shape to go 60 to 90 days at their present operating rate without purchasing additional coal.

Prices at the mines on domestic coal show a slight upward tendency. This is not noticed in Franklin County but on some of the other Illinois coals which have been selling below the Franklin County levels. Now that the demand is a little better, these operators are trying to bring their prices up more in line with the prices being obtained for the best grades of southern Illinois coal. Pocahontas mine run also increased. Kentucky block, which was offered a week or so ago very freely at $2.25, has completely disappeared and it is now difficult to place business calling for prompt shipment at $2.50 or even $2.75.

LOUISVILLE

The market is as nervous as a thoroughbred at the wire. Producers are watching closely for opportunities to secure better prices, and jobbers are afraid to take business without first getting it accepted by the mine. Producers do not care for period business and the market is getting into a strictly spot channel

The market is so nervous that everyone is afraid apparently to close any business that is not for immediate shipment. Stock rolling is to be had at old prices, but on new inquiries prices are higher than they were a week ago, except on lump and some lower grades of mine run.

Many mines in eastern Kentucky are operating on a very fair-time basis. Reports from railroad men and trainmen are to the effect that considerably more coal is moving.

On some of the inquiries now coming the concern placing the inquiry gives the seller to understand that no contract will be considered that has any clauses relative to miners or railroad strikes, car shortage, etc., and specifying deliveries over periods of several months. Of course no one is interested in such inquiries.

It appears as if the market will continue unsettled until something definite is known concerning the threatening strike. If it is certain there is a strike —it looks like stiff prices. As a rule the trade sees nothing in sight but a strike, considering the attitude of coal miner and producer.

ST. LOUIS

Seasonable weather prevailing in the territory has kept the retail movement of coal in pretty fair condition but, as usual, it is in small lots and calls are for the cheaper grades. Standard seems to be in the lead, with Mt. Olive a close second and Carterville trailing along third, with very little demand at all for hard coal, smokeless or coke, although coke moves in a greater tonnage than the hard coal and smokeless combined.

Dealers all report heavy stocks of high-grade coal on hand and little, if any, high grade, will be bought for storage against a possible strike. Mt. Olive does not store well and such as will be put in will come in just previous to April 1, if it is obtainable, and, if not, then Standard will suffice.

Some small manufacturing plants are gradually acquiring a little storage supply of a couple of weeks or a month, but storage in general has not been provided for in St. Louis as it has been in Eastern cities.

Country demand has been fairly good for the cheaper grades. This has been somewhat scattered and no country dealer feels like storing in great quantities.

A fairly good movement has been noticed through this gateway to Omaha and Kansas City and considerable steam tonnage is being moved to Chicago from the Standard field. Otherwise conditions are quiet and there is no change in prices.

SOUTHERN ILLINOIS

Railroads are taking a little Carterville for storage but in a general way it is not what it should be. There is some storage moving to the North through Chicago but this is in small volume compared with other strike years. All mines have an abundance of all sizes on hand.

There is nothing to indicate that there will be any marked change unless something drastic and definite pertaining to the strike becomes public.

Domestic demand is unusually quiet even though cold weather prevails. There has not been much change in prices since last week. Some coal has been offered as low as $3 from a mine in Williamson County, which is supposed to be controlled by one of the leading members of the operator's association.

The general state of affairs in the field is far from satisfactory from the viewpoint of the operator and the miner. So little coal is being shipped over the Missouri Pacific that coal trains which used to move out at the rate of two or three now go at the rate of one or two per week.

Conditions in the Duquoin and Jackson County fields are somewhat similar to those in the Carterville field as to price and working time. The Mt. Olive situation shows little improvement even though cold weather is here. There is some domestic demand both in St. Louis and Chicago, as well as Kansas City and Omaha, but it is not in the volume that it should be. There has been no change in price since last week.

Standard conditions are unchanged. There is a surplus of all sizes but the railroads have helped to some extent in the matter of storage coal. Industrial storage coal does not seem to materialize and just enough coal is moving, it appears, for current needs. The domestic call in the country is fairly good on 2-in. sizes. The mines throughout the field average about three days a week, with several of them idle.

WESTERN KENTUCKY

Unsettled weather is making for an uncertain demand for prepared coal, but production as a whole is light. Mine run is not moving especially well. Pea and slack is hardly to be had, as operators, while refusing contracts, are able to ship production as fast as mined.

While some of this demand is from consumers who are stocking up for fear of advancing markets and inability to secure supplies, if the strike comes off, there is also a steadier demand for immediate consumption in industrial plants which are on a slightly better basis. Railroad consumption is also reported to be showing a shade better.

Announcement has just been made that through rates have been published from western Kentucky mines to the Southern Peninsular of Michigan, the rate being 25c. a ton over the rate from southern Illinois, and affecting several hundred points.

South

BIRMINGHAM

Overlapping rainy and cold weather is keeping up a fair demand for household coal. Most retailers still have a good supply on hand and are not anticipating placing further orders. Hence short-time operations are still the order at the mines.

No change is noted in the steam situation. Although progress upward in industrial channels is seen, the pace is a slow one and has not so far proven beneficial in increasing commercial consumption. Orders are still of small volume and intended to supply immediate needs. Railroads and utilities are taking their minimum or less in most cases. The Southern has increased its quota from this district since the expiration of contracts in another field, which is giving contract mines slightly better working time.

Wage adjustments either have been made effective or will be made at practically all mines in the Alabama field this month, and with the advent of better demand business in the coal industry should go forward without interruption.

VIRGINIA

The slight spurt in demand which is noticeable is not due so much to any improvement in industrial conditions as it is to the fear of a strike. More than 60 per cent of potential capacity is being produced. Mine run is stiffening in price and is now quoted better than $2 but lump is unchanged at $3.

News Items From Field and Trade

CONNECTICUT

The R. C. McNeil Co., Bridgeport, filed a certificate of incorporation recently to deal in coke, coal, ore, etc. The capital stock is $100,000. Roderick C. McNeill, head of the company, is one of the officers of the Karm Terminal Co., Bridgeport, wholesale and retail coke and coal dealers.

The Mill River Coal Co., New Haven, recently filed a certificate for the reduction of capital stock from $100,000 to $25,000.

The Smith-Pearsall Co., Inc., Hartford, recently filed a certificate of incorporation to handle coal, lumber, etc. The capital stock is $200,000, and the officers are: H. E. Pearsall, vice-president; S. F. Westbrook, president; H. M. Guernsey, treasurer; E. W. Smith, secretary and assistant treasurer.

The Citizens Coal Co., Inc., New Britain, is having a large coal pocket and elevator built at the coal yards in that city.

ILLINOIS

H. H. Taylor, president of the Taylor Coal Co., Chicago, was in Herrin recently, looking over the company's property in that vicinity.

Vice-president Jenkins of the **Consolidated Coal Co.,** has estimated that it will cost the company between $100,000 and $150,000 to complete the job of pumping mine No. 9 at Murphysboro. The mine was flooded early last December when a large hole fell through the bed of the Big Muddy, the water reaching a height of 15 feet from the top of the shaft. Shortly after the disaster occurred it was rumored that the company had decided to abandon the mine owing to the great difficulty of pumping. However, pumps were immediately set to work and have at this time made much headway. It is estimated that the work will be completed in about four or five more weeks.

W. E. Rutledge, president, of the Security Coal & Mining Co., Chicago, with mines in southern Illinois, was in that region recently attending to business for the company.

The following itinerary has been announced for February for the **Illinois Mining Examining Board:** Duquoin, 14th; Staunton, 15th; Springfield, 16th; Lincoln, 17th; Danville, 18th; Peoria, 20th, and Spring Valley Feb. 21.

The Riverton Mine at Springfield has been again put into operation by the **Springfield District Coal Mining Co.** The mine employs in the neighborhood of 300 men.

J. M. Dillavou, of Chicago, was a visitor at various points in Illinois recently, inspecting mines which belong to the Harris-Dillavou-Dimond Co. The company, which is a comparatively new concern, has acquired large operations recently in the Franklin and Williamson fields.

The Sincerity Coal Co. of Chicago has contracted with Roberts & Schaefer Co. for the complete installation of shaker loading booms in the tipple at Marion.

The Union Colliery Co., operating the Kathleen Mine at Dowell, recently tendered the officials of the mine a banquet at Duquoin. The affair was under the management of Eugene McAuliffe, of St. Louis, who is president of the company and general manager of the mine. The guests included Superintendent George Snedden, the mine manager and his assistants at the mine, E. F. Stevens, of St. Louis, auditor for the Union Colliery Co., and Dr. Young, consulting engineer for the Union Electric Co., St Louis.

INDIANA

The case of **Harry S. Frank,** a Cleveland, Ohio, broker, against the **Rowland Power Consolidated Collieries Co.,** at Terre Haute, was dismissed in Federal Court in Indianapolis recently on motion of the plaintiff. The motion to dismiss came after considerable progress had been made in the trial of the case. The suit was instituted to recover $6,700 said to be due in service in selling $600,000 worth of bonds of the company.

Seven hundred miners of the **Clinton Coal Co.,** at Clinton, will abide by orders of John Hessler, president of District 11, U. M. W. of A., to continue their strike in protest against the discharging of a pumper by the company last October. The miners will be able to continue their strike, since they have received financial aid from other locals in District 11. Some miners recently said at a meeting that unless the district officials and operators reached an agreement, or the miners received financial aid, they would return of their own accord.

Reassessment of coal properties in Clay County are as follows: Bays Logan Coal Co., Sullivan, total increased from $6,135 to $12,000; Bolt Coal Co., Coalmont, total reduced from $59,030 to $34,030; Brazil Collieries Co., Brazil, total reduced from $118,000 to $102,440; Brazil District Mining Co., Brazil, increased from $19,650 to $25,190; Carbon Mining Co., Carbon, personal increased from $35,145 to $46,535; Otter Creek Coal Co., Brazil, total increased from $1,920 to $83,610; Primrose Coal Producers Co., Indianapolis, total increased from $29,385 to $56,045; Rowland-Powers Consolidated Collieries Co., Terre Haute, Posey Township, personal reduced from $168,620 to $143,715, Harrison Township personal increased from $72,359 to $82,840; South Side Coal Co., Coalmont, Lewis Township, reduced from $10,000 to $9,645; United Fourth Vien Coal Co., Linton, reduced from $6,070 to $3,080.

Indiana coal mines produced 22,773,444 tons during the fiscal year which ended Sept. 30, according to the annual report of **Cairy Littlejohn,** chief deputy state mine inspector. The production was distributed as follows: Machine-mined block coal, 57,475 tons; pick-mined block coal, 27,863 tons; machine-mined bituminous coal, 11,696,893 tons; pick-mined bituminous coal, 10,039,520 tons, and strip-mined coal, 951,693 tons. Mines worked an average of 148 days during the year. The number of days of employment lost by miners for various causes is as follows: No orders at mines, 20,480 days; no cars, 2,282 days; strikes, 1,178 days; funerals, 50 days; suspensions, 637 days, and other causes, 4,833 days.

A contract, which will amount to probably 300,000 tons, taken in the next twelve months, has been made by the **Eureka Coal, Co.,** for the coal mined at its mine, eleven miles south of Terre Haute, with the Chicago & Eastern Illinois R.R.

The Miami Coal Co., operating four mines in the Clinton field, has signed a pledge to give $10,000 to the Vermillion County Hospital and the **J. K. Dering Co.,** with two mines, has signed a pledge to give $7,000. **H. M. Ferguson,** president of the Clinton and the Ferguson-Spears companies, had signed to give $10,000.

KENTUCKY

Eight men were killed, two badly injured and one is missing as the result of a mine explosion, which recently wrecked a mine of the **Marietta Coal Co.** on Pond Creek, Pinson Fork.

A petition in bankruptcy has been filed in Federal court by the **Boyce Coal Co.,** of Madisonville. The company lists its assets at $40,332.90, and liabilities at $31,101.73. Among the liabilities there is a claim of $3,357 due to coal miners.

The Clifton Coal & Lumber Co., Louisville, capital $30,000, has been chartered by A. J. Corey, Frank Gernert and B. A. Doyle. The company has a yard at Crescent Hill, on the eastern yards of the Louisville & Nashville. The same interests are connected with the Corey-Sheffel Lumber Co.

The Calhoun interests, of Frankfort, composed of Patrick Calhoun, Sr., and his sons, Patrick, Jr., Andrew and George, plan to start work on a coal station at Louisville shortly, having leased from the city and Pittsburgh Fuel Co., a strip of land on the Ohio River. It is planned to install a series of switches at graded levels, and arrange to transfer coal from barges to rail, and to elevator, bringing coal in from Kentucky and Ohio River points, including eastern Kentucky and West Virginia coal. It is planned to purchase river equipment, and transfer and distribute by rail from the Louisville plant at a considerable saving in freight costs.

The Black Diamond Coal Mining Co., of Drakesboro, recently installed a set of automatic cagers.

MINNESOTA

W. E. Le Blanc, for six years sales agent of the Clarkson Coal Co., at Duluth, has resigned and gone to make his home in Los Angeles, Cal.

J. A. Howe, vice-president and general manager of the Carnegie Dock & Fuel Co., was in Duluth recently on an inspection tour of the company's docks.

W. A. Prinsen, secretary of the Northwestern Coal Dock Operators' Association, Minneapolis, has been in the East for some time.

A new incorporation in Minneapolis is the **Leighton Fuel Co.,** capital $50,000. The incorporators include G. A. Leighton, president; R. A. Leighton, vice-president and treasurer; and J. F. Buchanan, secretary.

NEW YORK

C. R. Stahl, of the E. E. White Coal Co., at Glen White, was in attendance at a meeting of the smokeless people at New York on Feb. 8 and 9.

The Chillingworth Engineering Corporation has associated with it **Frank H. Plum, Herbert Pluemer, George E. Mellin and Harold von Thaden,** formerly of the C. W. Hunt Engineering Corporation, and will carry on a business of a character similar to that conducted by the C. W. Hunt Engineering Corporation. It will occupy offices at 143 Liberty St., New York.

Justus Collins, of Charleston, head of the Collins companies in the southern part of West Virginia, was a visitor in New York City during the meeting of the smokeless operators.

Swindle of coal companies in various cities of $500,000 by worthless credit ratings was revealed by Federal authorities following the arrest in Cleveland of two accused as members of a band of fraudulent coal brokers in Brooklyn. The men, registered as Frank L. Matthews of Chicago and Matthew Luther of Brooklyn, were arrested following an investigation lasting nearly a year. The men are alleged to have operated a coal and material company and to have represented it as a branch of a company in Brooklyn. After ordering a shipment of coal, a representative of this company would intercept it in transit and have it reconsigned to another city where, it is said, it would be sold for cash.

The Fulton Coal Co. has been incorporated to transact business in New York City. It has a capital of $20,000. The incorporators are given as F. H. Borman and J. C. Brown.

OHIO

It is said that Governor Davis' recent request upon various municipalities and other public bodies to burn only Ohio coal, is meeting with favor. The Board of County Commissioners of Cuyahoga County is shortly to pass upon resolutions in this connection, one of which calls upon individuals resident in Cleveland and Cuyahoga County to use Ohio coal wherever possible. The sole object of the governor's appeal is to provide more work for Ohio miners, who in some parts of the state have worked but a small per cent of the time during the past nine months due to "no market" conditions. One prominent coal operator said that every ton of coal used in Ohio, except in steel annealing furnaces and similar industries, needing anthracite, could just as well be Ohio mined.

The Moore Fuel Co., chartered recently with a capital of $25,000 has opened offices at Columbus, with J. W. Moore, president; Frank Gould, vice-president, and F. J. Leonard, secretary. The company will operate a mine in Perry County and also conduct a wholesale business.

The Big Mandy Coal Co. has been incorporated and its directors have elected the following officers: Charles A. Norton, president; Rush Meadows, vice-president and general manager; John O. Eckert, secretary and H. Ruscka, treasurer. The company will do both a wholesale and retail business. Its offices are located at Cincinnati. Yards are to be opened in the near future.

An involuntary petition in bankruptcy in which the **Riverside Coal Mining Co.,** White Star, Harlan County, Ky., was declared to be insolvent and bankrupt, was filed in United States Court at Cincinnati recently.

What is regarded as a vote of confidence in the administration of John L. Lewis as international president, and Lee Hall, Ohio president of the United Mine Workers, was given at the annual convention of the Ohio organization recently. The action was taken in the form of a refusal to accept a constitutional amendment limiting the appointive power of union officials and followed charges made on the floor of the convention that Ohio officials were operating a "steam roller," and that Lewis had built up a governing machine.

PENNSYLVANIA

The Burgettstown Coal Co. has contracted for additional screening and conveying equipment for preparing and storing nut coal at the Burgettstown Mine.

Harry Barrett Marshall, well-known manager of the St. Louis branch of the Electric Storage Battery Co. has been placed in charge of all railway sales work of the company. Mr. Marshall will be located at the factory in Philadelphia. He has been associated with the company for the past 16 years.

The Imperial Coal Corporation, Johnstown, held its annual meeting recently and re-elected the following officers: President, Charles A. Owens, of New York City; vice-president, James P. Thomas, of Philadelphia and Johnstown; secretary, Frank D. Baker, of Johnstown; treasurer, Philip E. Thomas, of Merion; sales manager, New York, E. H. Zimmerman, of New York; Philadelphia, Harry A. Ling, of Philadelphia; general manager, James M. Cook, of Johnstown. It was stated at the meeting that the mines of the company operated 100 per cent of 300 days during 1921.

The Pennsylvania Water Supply Commission has approved the application of the **Reitz Coal Co.** to build a dam across Panther run in Shade township, Somerset County.

According to notice received at the office of the Secretary of the Commonwealth the **Imbrie Coal Co.**, Butler County, has dissolved.

The Somerset-Windber Coal Co. has filed a complaint with the Public Service Commission of Pennsylvania against the Pennsylvania Railroad Co., alleging that the road has refused to install a siding from its lines to the coal mines of the complainant in Paint township, Somerset County. The complaint states that an agreement had been reached between the parties and that the coal company gave its check for $13,000 to the railroad company for the construction of the siding. The railroad company made application to the Public Service Commission for approval of the proposed siding and for a grade crossing at a township road, the complaint states, but the application was later withdrawn.

The Harrisburg Colliery Co. announces the addition to the staff of A. Bement in an engineering capacity, working in connection with the sales department for the purpose of rendering service among coal producers.

At a meeting of the board of managers of the **Lehigh Coal & Navigation Co.**, held Jan. 25, the following officers were elected, effective Feb. 1: **Henry H. Pease**, vice-president and secretary; **O. E. Neff**, treasurer. The treasurer will report to the vice-president and secretary.

UTAH

J. A. Garcia, mining engineer of Chicago, is examining coal properties in Utah for Eastern banking interests. He expects to return to Chicago about the middle of February.

D. H. Pape, general manager of the Lion Coal Co., Ogden, has resigned. After a vacation in California, Mr. Pape will help to organize a company that will develop coal lands in southern Utah. Mr. Pape is one of the most prominent coal operators in the mountain country.

Utah is to have a state geologist, according to a promise of Governor Mabey. The official has not yet been selected.

According to **L. F. Rains**, president of the Carbon Fuel Co., Salt Lake City, plans are under way for the development of a large deposit of coal in the southern part of the state. Mr. Rains says this coal shows an analysis comparable with the Pennsylvania anthracite and may be offered on the Salt Lake market by next fall. He said the prices would permit of its general consumption. It is hoped that this coal will help solve Salt Lake City's smoke problems.

VIRGINIA

F. H. Wilson, deputy commissioner of the Chesapeake & Ohio Coal Exchange, has accepted the position of general agent at Norfolk for the Chesapeake & Ohio Ry., to succeed J. B. Bell. The office vacated by Mr. Wilson has been abolished.

W. W. Houston, of the Pan Handle Coal Co., is chairman of a committe of five appointed by the Chamber of Commerce to appear before the General Assembly, now in session, and support measures calculated to bring down pilotage charges in Hampton Roads. Many coal men are interested in this move. **J. R. Routteen**, of the Chesapeake & Ohio Coal & Coke Co., and **J. W. Bunting**, of the Tuttle Corporation, have gone to Richmond to appear before the General Assembly on this question.

At the annual meeting of the **Samoset Fuel Corporaton**, with mines in Pike County, Ky., operating under a Virginia charter, which was held a few days ago at Graham, and officers elected for another year. W. J. Cole was again elected as president of the company. Other officers are: H. M. Mitchell, vice-president; S. G. Bralley, secretary and general manager. On the board of directors are W. J. Cole, H. M. Mitchell, R. B. Parrish and W. B. Morton. This company owns valuable coal properties, gas and oil rights in Kentucky.

Melville Cockburn, of the New England Coal Co., has been in Roanoke for a conference with officials of the Norfolk & Western Ry.

WASHINGTON, D. C.

The Interior Department has amended the **coal leasing regulations** by providing that in the case of a lease for a small area where the investment will be $10,000 or less, the lessee shall furnish one bond to cover the investment and compliance with the lease, the bond not to be less than $1,000 and not more than one-half of the value of the investment.

The Geological Survey has restored to entry 200 acres of land in Washington previously withdrawn for coal classification. In December it reported on seventeen applications for coal prospecting permits, a total of 445 reports since the leasing law was passed. The survey also reported on 112 applications for coal leases.

One of the few to escape unhurt from the pit of the **Knickerbocker Theater at Washington** was a man who had spent much of his life as a coal miner. When he heard the ominous cracking which preceded the collapse, he instinctively dashed for an exit because the sound, he explained afterwards, was so similar to that which precedes the fall of roof in a coal mine.

The War Department reports that it cost $150,000 to send troops into the West Virginia coal fields in September and October, 1921, to quell the rioting.

The Postoffice Department requests $10,000 for anthracite and improvements to present equipment which will permit the burning of bituminous coal, decreasing the amount consumed.

For fuel for the **District of Columbia schools** an additional $29,300 is asked and smaller appropriations for other public institutions in the District.

An appropriation of $11,057,610 for fuel for the Navy for the balance of the fiscal year ending June 30 has been transmitted to Congress by the President upon request of the Secretary of the Navy and the Budget Bureau. This is based upon a requirement of $29,000,000 for the year, Congress having appropriated only $17,500,000 at the last session. These arrangements involve a reduction in the activities of naval vessels below the force operating plan and below the point where it is believed naval efficiency can be maintained.

Coal savings are reported by the Budget Bureau through co-ordination between the various government departments. The co-ordinator of the first army corps area discovered that it was costing the army an average of $20 a ton for coal delivered at Fort Adams for use of its vessels operating in that vicinity, and that coal could be supplied Fort Adams from the Navy fuel station at Melville, R. I., at $9.50 a ton. Through the co-operation of the Navy this arrangement was put into effect. The area co-ordinator of the sixth corps area reported that 3,000 tons of coal was on hand at Fort Sheridan, Ill., in excess of requirements. The coal was declared surplus and it was taken by the Chicago postmaster, saving the government $8,160.

Architect Elliot Woods of the U. S. Capitol told the House Appropriations Committee that the cost of coal for heating the building had declined in a year from $8.20 to $7.32 a ton. The coal is purchased from the government fuel yards. Early in the year it cost $9.40 a ton and some was obtained as low as $6.53 a ton. Last year 24,630 tons of coal were burned at the Capitol.

WEST VIRGINIA

A visitor in the Morgantown field a short time ago was **Arch Straub**, of the Straub-Atchinson Coal Co., of Pittsburgh.

In addition to other building activity connected with the mines in the Winding Gulf region, the **E. E. White Coal Co.** has perfected plans for the erection of a modern steel tipple at its large Glen White plant. No time will be lost in erecting this tipple, in connection with which a new hoisting tower is also to be erected. The head of the E. E. White Coal Co. is E. E. White, president of the Winding Gulf Operators' Association.

Work is being pushed on the installation of electrical equipment at the No. 9 mine of the **Jamison Coal & Coke Co.** in the Marion County field near Farmington. Other plants of the same company have been electrified within recent months in the Fairmont region, all with a view to increasing the capacity.

Approximately 50,000 acres of coal land in Harrison, Doddridge and adjoining counties in West Virginia will figure in a deal in which J. V. Thompson of Uniontown, Pa., is a leading figure, the work of securing options on the lands now being under way. The property is being optioned in many instances at the rate of $300 an acre. If the deal goes through, as is expected, the consideration involved will be about $15,000,000, but only 25 per cent of the purchase price is to be paid in cash. Companies said to be figuring in the deal are the **Piedmont Coal Co., Harrison Coal Co.** and the **Doddridge Coal Co.**

A. Hunter Land, of Charleston and Logan, is to retire from the coal business and to enter the lumber business in the West, having been elected treasurer of the Hutchinson Lumber Co., of Sacramento, Cal. Until recently he had been president of the Dickinson Fuel Co., of Charleston and treasurer of the West Virginia Coal Association.

With a reorganization of and an increase in the capital stock of the **Southern Coal Corporation**, of Fairmont, that company will soon enter upon the production of coal, having heretofore been in the business only of selling coal. The concern has acquired a large mine on the Charleston Division of the B. & O. and another mine in Lewis County. Plans are under way to acquire mining properties in the Kanawha and in the Logan fields. Following the reorganization of the company new officers and directors were elected as follows: J. E. Gaskill, of Fairmont, president; C. T. Denly of Cleveland and E. M. Powell of Waynesburgh, Pa., vice-presidents; H. M. Hill, secretary; L. V. Board, Shinnston, treasurer; A. J. Salzer, sales manager. On the board of directors are: C. E. Gaskill, J. S. LeMasters, R. V. Hennen, Pittsburgh; A. J. Salzer and several others prominent in the coal industry of Fairmont and Pittsburgh.

WISCONSIN

The Superior Fuel & Supply Co., of Kenosha, has filed a voluntary bankruptcy petition in the Federal District Court, listing liabilities at $51,856, and assets at $19,960.

The Ajax Coal Co. and the Bell Coal Co. of Pittsburgh; Cleveland Cliffs of Cleveland, who owns a large fleet of boats as well as being the largest owners of ore mines in northern Michigan, and also own and operate coal properties in West Virginia; Bailey-Wood Coal Co., Ragland Coal Co., Anigo Coal Co., Low-Volatile Consolidated Coal Co., Rick Lick Coal Co. Other large stockholders will be producing companies in Kentucky and Tennessee.

An explosion of illuminating gas, due to a leaky supply pipe, demolished the office building of **Pugh Coal Co.**, at Racine, on Jan. 30, causing a loss estimated at $25,000. Wm. Higie, a coal dealer, and L. E. Williams, yard superintendent, were seriously burned and bruised by falling bricks.

Work on a new $10,000 coal "silo" will be started within the next few months in the coal yard of the Harcum Fuel Co., Fond Du Lac.

Obituary

William Wilson, a pioneer coal operator of Missouri, died recently at his home in Richmond, Mo. Mr. Wilson was 80 years old and lived in Richmond more than forty years. He was president of the Wilsen & Crawford Coal Co.

T. Percy Bryan, secretary and treasurer of the Gray-Bryan-Sweeney Coal Co., Kansas City Mo., died recently. He had been a sufferer for more than a year with heart disease.

Fred W. Struck of the Struck Coal Co., a pioneer resident of Milwaukee, is dead at the age of 71.

Traffic News

Virtually all of the Western states have started one kind of suit or another to compel freight rate reductions. The battle staged in Washington by the Colorado transportation committee for a reduction in freight rates on many commodities was a concerted drive on the commission. Colorado shippers took the position that freight rates were a hindrance to, and deprived them of profits on all ordinary business. Stockmen, farmers and mine operators alike are suffering from what they claim to be unjustifiable rates. Colorado's demand for a 35 per cent reduction in freight rates charged by Western railroads, was presented by Merle D. Vincent of Grand Junction, attorney for the state transportation committee. All the railroads, particularly those in Colorado, are defendants to the suit.

In a complaint to the I. C. C. the **Pittsburgh Coal Producers' Association** allege unreasonable rates on bituminous coal from mines in the Panhandle group and in Brooks, Hancock, and Ohio counties, West Virginia, to destinations in West Virginia.

The complaint of the **Northern West Virginia Coal Operators' Association,** will be heard by the I. C. C. at Washington, Feb. 20.

In the complaint of the **Smokeless Fuel Co.,** the I. C. C. has authorized the **Leckie Coal Co.,** and the **Interstate Coal & Dock Co.,** to intervene. The case involves demurrage charges on coal for trans-shipment by vessels at Norfolk and Lamberts Point, Va.

In the complaint of the **Michigan Paper Mills Traffic Association,** the railroads ask the commission to authorize the continuance of through routes on coal from L. & N. and C. & O. origins to Detroit via the originating carriers to Cincinnati, Cincinnati Northern R.R. to Jackson and Michigan Central to Detroit, and higher rates at intermediate points and continuance of the route from Ohio and Kanawha districts to Jackson via Pontiac, Mich., and Grand Trunk delivery and higher rates at intermediate points.

The Republic Coal Co., Minneapolis, in a complaint alleges unreasonable rates on soft coal from Logan, Ill., Allais, Ky., and Staunton, Ill., to points in Wisconsin and Minnesota because the railroads sought to impose alleged illegal demurrage charges. The company also alleges unreasonable demurrage charges on anthracite from Pulaski, Va., to Tyler, Minn.

An effort is being made to reduce state rates on coal affecting Iowa railroads. A brief has been filed with the Interstate Commerce Commission by the **Cedar Rapids Chamber of Commerce** setting forth reasons why the reduction should be made.

In a complaint to the I. C. C. the **Central Wisconsin Supply Co.,** of Beaver Dam, alleges unreasonable rates on anthracite from Pittsburgh, Pa., to Pardeeville, Wis., reconsigned to Sparta, Wis. It asks reparation on the basis of the Chicago combination plus $7 for reconsignment.

Trade Literature

U-RE-Lite, the I-T-E Circuit Breaker in The Steel Box—The Cutter Co., Philadelphia, Pa. Pp. 36; 6 x 9; illustrated. Describing the application of the U-Re-Lite for the protection of electric motors, power and lighting circuits from overloading.

The Improved Diel-More Automatic Drain and Relief Valve. The Diel-More Sales Co, Inc., Bourse Bldg., Philadelphia, Pa. A 7-page folder describing the use of the valve, with directions for installing it.

Thermalloy High Temperature Castings. The Electro Alloys Co., Elyria, Ohio. Pp. 6; 8½ x 11 in.; illustrated. Also contains charts showing curves of tests with thermalloy.

Testing that Pays Dividends. The Dorr Co., 101 Park Ave., New York City. Pp. 15; 7½ x 10½ in.; illustrated. Description of the Westport Mill, with information as to the methods employed therein in handling tests and problems.

Steam Turbines and Alternator Units. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin No. 1119. Pp. 57; 8 x 10½ in.; illustrated. Describes high-pressure single-cylinder units, ranging in size from about 5,000 kw. to 15,000 kw., operating at speeds of 15,000 and 18,000 r.p.m.—Advertiser.

Francke Flexible Couplings. Smith & Serrell, Newark, N. J., general sales agents for The Francke Co. of New Brunswick, N. J. Bulletin No. 32. Pp. 16; 6 x 9 in.; illustrated. Describes the use of these couplings for direct-connected machines.

Trade Standards in the Pump Industry. Recommended by The Hydraulic Society, 50 Church St., New York City. Pp. 19; 6 x 9 in. A useful book to both the pump manufacturer and consumer as it gives the standard trade definitions and customs in the pump industry.

The Brownie Portable Electric Hoist.—Cherry Tree Machine Co., Cherry Tree, Pa. Bulletin No. 2. Pp. 12; 6 x 9 in.; illustrated. Describes small portable electric hoist designed for mine service.—Advertiser.

Stearns Material Handling Methods.—Stearns Conveyor Co., Cleveland, Ohio. Bulletin No. 100. Pp. 15; 6 x 9 in.; illustrated. Among the many appliances described in this bulletin may be mentioned the Cleveland traveling bucket hoist, the Stearns wall winch and the Stearns car mover.—Advertiser.

Recent Patents

Rotary Car Dumper. George N. Simpson, Arthur M. Simpson and Walter H. Simpson, Chicago, Ill., 1,397,936. Nov. 22, 1921. Filed April 21, 1920; serial No. 375,570.

Apparatus for Using Powdered Fuel. Alonzo G. Kinyon, Chicago, Ill., assignor to the Powdered Coal Engineering & Equipment Co., Chicago, Ill., 1,396,761. Nov. 15, 1921. Filed Dec. 11, 1917; serial No. 206,639.

Process of Recovering Coal Held in Suspension from Coal-Bearing Water and Streams. Charles E. Holland, Brooklyn, N. Y., 1,397,735. Nov. 22, 1921. Filed Nov. 13, 1920; serial No. 423,810.

Crusher and Pulverizer. Milton F. Williams, St. Louis, Mo., assignor to Williams Patent Crusher & Pulverizer Co., St. Louis, Mo., 1,397,828. Nov. 22, 1921. Filed Aug. 7, 1919; serial No. 315,893.

Publications Received

A Study of the Effect of Moisture Content Upon the Expansion and Contraction of Plain and Reinforced Concrete. Engineering Experiment Station, University of Illinois, Urbana, Ill. Bulletin No. 126. Pp. 37; 6 x 9 in. Charts and tables.

The Problem of the St. Peter Sandstone. School of Mines and Metallurgy, University of Missouri, Rolla, Mo. August, 1921. Pp. 228; 6 x 9 in. Illustrated; plates and charts.

Coal and Coke Mixtures as Water-Gas Generator Fuel, by W. W. Odell. Department of the Interior, Bureau of Mines. Technical paper 284. Pp. 32; 6 x 9 in. Illustrated; plates and tables.

Gas Mask for Gases Met in Fighting Fires, by A. C. Fieldner, Sidney H. Katz and S. P. Kinney. Department of the Interior. Bureau of Mines. Technical paper 248. Pp. 61; 6 x 9 in. Illustrated; tables.

Gas Producers Trials with Alberta Coals, by John Blizard and E. S. Malloch. Department of Mines, Canada; Mines Branch. Bulletin 33. Pp. 40; 6¼ x 9½ in. Illustrated; charts and tables.

The Distribution of the Forms of Sulphur in the Coal Bed, by H. F. Yancey and Thomas Fraser. Engineering Experiment Station, University of Illinois, Urbana, Ill. Bulletin No. 125. Pp. 94; 6 x 9 in. Illustrated; charts and tables.

Annual Report of Mineral Products of Canada, during the Calendar Year 1920. Department of Mines, Canada; Mines Branch. Pp. 80; 6½ x 9½ in.

Proceedings of the National Safety Council. Tenth Annual Safety Congress, held at Boston, Mass. Sept. 26-30, 1921. Pp. 920; 6 x 9 in.

Annual Report of the Director of the Bureau of Foreign and Domestic Commerce to the Secretary of Commerce for the Fiscal Year Ended June 30, 1921. Pp. 148; 6 x 9 in.

An Investigation of The Fatigue of Metals, by H. F. Moore and J. B. Kommers. Engineering Experiment Station, University of Illinois, Urbana, Ill. Bulletin No. 124. Pp. 185; 6 x 9 in. Illustrated; charts and tables.

First Annual Report of the Federal Power Commission for Fiscal Year Ended June 30, 1921. Pp. 239; 6 x 9 in.

Association Activities

Monongahela Coal Association

William E. Watson of Fairmont, is the president of the Monongahela Coal Association that has been organized by the coal operators on the Monongahela R.R. (New York Central System) representing 65 mines with an annual production of 8,000,000 tons of coal a year. C. D. Junkin, of Morgantown, was elected secretary. Other officers of the association are B. M. Chaplin, Morgantown, vice-president; J. B. Hansford, Morgantown, treasurer.

The directors are: W. E. Watson, Jr., Samuel D. Brady, Fairmont; B. M. Chaplin, C. D. Junkin, John Hatfield, Whitney Warner, G. H. Gilbert, A. Q. Davis, W. H. Soper, George S. Connell, W. B. Atwood, Morgantown; John H. Jones Pittsburgh; Joseph Pursglove, Cleveland; Robert Grant, Boston.

The scale committee consists of B. M. Chaplin, J. B. Hansford, John L. Hatfield, John H. Jones, Joseph Pursglove, Samuel D. Brady, W. H. Soper, Robert Grant and R. M. Davis.

Coming Meetings

New England Coal Dealers' Association will hold its annual meeting March 22 and 23 at Springfield, Mass. President, W. A. Clark, Milk St., Boston, Mass.

Northwestern Pennsylvania Coal Operators' Association will hold its annual meeting Tuesday, March 7, at the Wm. Penn Hotel, Pittsburgh, Pa. Secretary, T. F. Diefenderfer, Butler, Pa.

Tri-State Coal Stripping Association's annual meeting will be held March 2 at Wheeling, W. Va. Secretary, G. A. Blackford, Wheeling.

Society of Industrial Engineers will hold its national spring convention at the Hotel Statler, Detroit, Mich., April 26-28.

American Institute of Electrical Engineers is holding its midwinter convention in New York City, Feb. 15, 16 and 17. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

American Institute of Mining and Metallurgical Engineers will meet on Feb. 20 to 23 in New York City. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

Canadian Institute of Mining and Metallurgy will hold its annual meeting March 1, 2 and 3 at Ottawa, Canada. Secretary, G. C. Mackenzie, Drummond Building, Montreal, Quebec, Canada.

National Association of Purchasing Agents will hold its seventh annual convention at Exposition Park, Rochester, N. Y., May 13-20. Secretary, S. C. McLeod, 130 W. 42nd St., New York City.

National Foreign Trade Council will hold its annual meeting May 10-12 at Philadelphia, Pa.

Rocky Mountain Coal Mining Institute will hold its next meeting at the Albany Hotel, Denver, Col., on Feb. 20, 21 and 22. Secretary-Treasurer, F. W. Whiteside, Denver, Col.